CROSSWALK: Science Standard Articulated by Grade Level to 1997 Science Standard

Kindergarten

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 1: Inquiry Process		
Concept 1: Observations, Questions, and Hypotheses		
Coding	**Performance Objective**	
SC00-S1C1-01	Observe common objects using multiple senses.	†
SC00-S1C1-02	Ask questions based on experiences with objects, organisms, and events in the environment. (See M00-S2C1-01*)*	1SC-R2-01 1SC-R4-01
SC00-S1C1-03	Predict results of an investigation based on life, physical, and Earth and space sciences (e.g., the five senses, changes in weather).	1SC-R4-02
Concept 2: Scientific Testing (Investigating and Modeling)		
SC00-S1C2-01	Demonstrate safe behavior and appropriate procedures (e.g., use of instruments, materials, organisms) in all science inquiry.	1SC-R1-01 3SC-R2-01
SC00-S1C2-02	Participate in guided investigations in life, physical, and Earth and space sciences.	†
SC00-S1C2-03	Perform simple measurements using non-standard units of measure to collect data.	1SC-R5-01
Concept 3: Analysis and Conclusions		
SC00-S1C3-01	Organize (e.g., compare, classify, and sequence) objects, organisms, and events according to various characteristics. (See M00-S4C4-01 and M00-S4C4-03)	1SC-R3-01
SC00-S1C3-02	Compare objects according to their measurable characteristics (e.g., longer/shorter, lighter/heavier). (See M00-S4C4-01)	1SC-R5-02
Concept 4: Communication		
SC00-S1C4-01	Communicate observations with pictographs, pictures, models, and/or words. (See M00-S2C1-02)	1SC-R6-01
SC00-S1C4-02	Communicate with other groups to describe the results of an investigation. (See LS-R3 and LS-R5)	†

† This PO is new to the Science Standard Articulated by Grade Level

CROSSWALK: Science Standard Articulated by Grade Level to 1997 Science Standard

Kindergarten

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 2: History and Nature of Science		
Concept 1: History of Science as a Human Endeavor		
Coding	**Performance Objective**	
SC00-S2C1-01	Give examples of how diverse people (e.g., children, parents, weather reporters, cooks, healthcare workers, gardeners) use science in daily life.	2SC-R1-01
SC00-S2C1-02	Identify how diverse people and/or cultures, past and present, have made important contributions to scientific innovations (e.g., Jane Goodall [scientist], supports Strand 4; Louis Braille [inventor], supports Strand 4).	2SC-F1-01
Concept 2: Nature of Scientific Knowledge		
	No performance objectives at this grade level	

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 3: Science in Personal and Social Perspectives		
Concept 1: Changes in Environments		
Coding	**Performance Objective**	
	No performance objectives at this grade level	
Concept 2: Science and Technology in Society		
SC00-S3C2-01	Describe how simple tools (e.g., scissors, pencils, paper clips, hammers) can make tasks easier.	†

† This PO is new to the Science Standard Articulated by Grade Level

CROSSWALK: Science Standard Articulated by Grade Level to 1997 Science Standard

Kindergarten

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 4: Life Science		
Concept 1: Characteristics of Organisms		
Coding	**Performance Objective**	
SC00-S4C1-01	Distinguish between living things and nonliving things.	4SC-R1-01 4SC-R1-02 4SC-R1-03
SC00-S4C1-02	Name the following human body parts: • head • shoulders • arms • elbows • wrists • hands • fingers • legs • hips • knees • ankles • feet • heels • toes (See 1CH-R3-01)	†
SC00-S4C1-03	Identify the five senses and their related body parts: • sight – eyes • hearing – ears • smell – nose • taste – tongue • touch – skin	†
Concept 2: Life Cycles		
SC00-S4C2-01	Describe that most plants and animals will grow to physically resemble their parents.	†
Concept 3: Organisms and Environments		
SC00-S4C3-01	Identify some plants and animals that exist in the local environment.	†
SC00-S4C3-02	Identify that plants and animals need the following to grow and survive: • food • water • air • space	4SC-R2-01 3SC-F3-01
SC00-S4C3-03	Describe changes observed in a small system (e.g., ant farm, plant terrarium, aquarium).	1SC-R7-01
Concept 4: Diversity, Adaptation, and Behavior		
	No performance objectives at this grade level	

† This PO is new to the Science Standard Articulated by Grade Level

CROSSWALK: Science Standard Articulated by Grade Level to 1997 Science Standard

Kindergarten

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 5: Physical Science		
Concept 1: Properties of Objects and Materials		
Coding	**Performance Objective**	
SC00-S5C1-01	Identify the following observable properties of objects using the senses: • shape • texture • size • color (See M00-S4C1-02 and M00-S4C1-03)	5SC-R1-01
SC00-S5C1-02	Compare objects by the following observable properties: • size • color • type of material (See M00-S4C1-02)	5SC-R1-02
Concept 2: Position and Motion of Objects		
SC00-S5C2-01	Describe spatial relationships (i.e., above, below, next to, left, right, middle, center) of objects. (See M00-S4C1-02 and 3SS-R1-01)	†
Concept 3: Energy and Magnetism		
SC00-S5C3-01	Investigate how applied forces (push and pull) can make things move.	†
SC00-S5C3-02	Investigate how forces can make things move without another thing touching them (e.g., magnets, static electricity).	†
SC00-S5C3-03	Sort materials according to whether they are or are not attracted by a magnet.	†
SC00-S5C3-04	Identify familiar everyday uses of magnets (e.g., in toys, cabinet locks, decoration).	†

† This PO is new to the Science Standard Articulated by Grade Level

CROSSWALK: Science Standard Articulated by Grade Level to 1997 Science Standard

Kindergarten

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 6: Earth and Space Science		
Concept 1: Properties of Earth Materials		
Coding	**Performance Objective**	
SC00-S6C1-01	Identify rocks, soil, and water as basic Earth materials.	6SC-R4-01
SC00-S6C1-02	Compare physical properties (e.g., color, texture, capacity to retain water) of basic Earth materials.	†
SC00-S6C1-03	Classify a variety of objects as being natural or man-made.	3SC-R1-01 3SC-R1-02 3SC-R1-03
SC00-S6C1-04	Identify ways some natural or man-made materials can be reused or recycled (e.g., efficient use of paper, recycle aluminum cans).	†
Concept 2: Objects in the Sky		
	No performance objectives at this grade level	
Concept 3: Changes in the Earth and Sky		
SC00-S6C3-01	Identify the following aspects of weather: • temperature • wind • precipitation • storms	6SC-R3-01
SC00-S6C3-02	Describe observable changes in weather.	†
SC00-S6C3-03	Give examples of how the weather affects people's daily activities.	6SC-R3-02

† This PO is new to the Science Standard Articulated by Grade Level

CROSSWALK: Science Standard Articulated by Grade Level to1997 Science Standard

Grade 1

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 1: Inquiry Process		
Concept 1: Observations, Questions, and Hypotheses		
Coding	**Performance Objective**	
SC01-S1C1-01	Compare common objects using multiple senses.	†
SC01-S1C1-02	*Ask questions based on experiences with objects, organisms, and events in the environment. (See M01-S2C1-01)*	1SC-R2-01 1SC-R4-01
SC01-S1C1-03	*Predict results of an investigation based on life, physical, and Earth and space sciences (e.g., animal life cycles, physical properties, Earth materials).*	1SC-R4-02 1SC-F1-03
Concept 2: Scientific Testing (Investigating and Modeling)		
SC01-S1C2-01	*Demonstrate safe behavior and appropriate procedures (e.g., use of instruments, materials, organisms) in all science inquiry.*	1SC-R1-01
SC01-S1C2-02	*Participate in guided investigations in life, physical, and Earth and space sciences.*	1SC-F1-04
SC01-S1C2-03	Use simple tools such as rulers, thermometers, magnifiers, and balances to collect data (U.S. customary units). (See M01-S4C4-07)	1SC-R5-01
SC01-S1C2-04	Record data from guided investigations in an organized and appropriate format (e.g., lab book, log, notebook, chart paper). (See W01-S3C2-01 and W01-S3C3-01)	†
Concept 3: Analysis and Conclusions		
SC01-S1C3-01	*Organize (e.g., compare, classify, and sequence) objects, organisms, and events according to various characteristics. (See M01-S4C4-01)*	†
SC01-S1C3-02	Compare the results of the investigation to predictions made prior to the investigation.	2SC-F3-02
Concept 4: Communication		
SC01-S1C4-01	Communicate the results of an investigation using pictures, graphs, models, and/or words. (See M01-S2C1-02 and W01-S3C3-02)	1SC-F1-05

† This PO is new to the Science Standard Articulated by Grade Level

CROSSWALK: Science Standard Articulated by Grade Level
to1997 Science Standard

Grade 1

SC01-S1C4-02	*Communicate with other groups to describe the results of an investigation.* *(See LS-F1)*	†

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 2: History and Nature of Science		
Concept 1: History of Science as a Human Endeavor		
Coding	**Performance Objective**	
SC01-S2C1-01	*Give examples of how diverse people (e.g., children, parents, weather reporters, cooks, healthcare workers, gardeners) use science in daily life.*	2SC-R1-01
SC01-S2C1-02	*Identify how diverse people and/or cultures, past and present, have made important contributions to scientific innovations (e.g., Sally Ride [scientist], supports Strand 6; Neil Armstrong [astronaut, engineer], supports Strand 6).*	2SC-F1-01
Concept 2: Nature of Scientific Knowledge		
	No performance objectives at this grade level	

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 3: Science in Personal and Social Perspectives		
Concept 1: Changes in Environments		
Coding	**Performance Objective**	
	No performance objectives at this grade level	
Concept 2: Science and Technology in Society		
SC01-S3C2-01	Identify various technologies (e.g., automobiles, radios, refrigerators) that people use.	3SC-F4-01
SC01-S3C2-02	Describe how suitable tools (e.g., magnifiers, thermometers) help make better observations and measurements.	†

† This PO is new to the Science Standard Articulated by Grade Level

CROSSWALK: Science Standard Articulated by Grade Level to1997 Science Standard

Grade 1

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 4: Life Science		
Concept 1: Characteristics of Organisms		
Coding	**Performance Objective**	
SC01-S4C1-01	Identify the following as characteristics of living things: • growth and development • reproduction • response to stimulus	†
SC01-S4C1-02	Compare the following observable features of living things: • movement – legs, wings • protection – skin, feathers, tree bark • respiration – lungs, gills • support – plant stems, tree trunks	4SC-F3-01 4SC-F3-02 4SC-F3-03 4SC-F3-04
SC01-S4C1-03	Identify observable similarities and differences (e.g., number of legs, body coverings, size) between/among different groups of animals.	4SC-R3-01 4SC-R3-02 4SC-R3-03
Concept 2: Life Cycles		
SC01-S4C2-01	Identify stages of human life (e.g., infancy, adolescence, adulthood).	4SC-F2-01 4SC-F2-02
SC01-S4C2-02	Identify similarities and differences between animals and their parents. (See 1CH-F4)	4SC-F6-01 4SC-F6-02
Concept 3: Organisms and Environments		
SC01-S4C3-01	*Identify some plants and animals that exist in the local environment.*	4SC-F7-01
SC01-S4C3-02	Compare the habitats (e.g., desert, forest, prairie, water, underground) in which plants and animals live.	3SC-F3-01
SC01-S4C3-03	Describe how plants and animals within a habitat are dependent on each other.	3SC-F3-02
Concept 4: Diversity, Adaptation, and Behavior		
	No performance objectives at this grade level	

† This PO is new to the Science Standard Articulated by Grade Level

CROSSWALK: Science Standard Articulated by Grade Level
to1997 Science Standard

Grade 1

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 5: Physical Science		
Concept 1: Properties of Objects and Materials		
Coding	**Performance Objective**	
SC01-S5C1-01	Classify objects by the following observable properties: • shape • texture • size • color • weight	5SC-R1-02
SC01-S5C1-02	Classify materials as solids or liquids.	5SC-F3-01
Concept 2: Position and Motion of Objects		
SC01-S5C2-01	Demonstrate the various ways that objects can move (e.g., straight line, zigzag, back-and-forth, round-and-round, fast, slow).	†
Concept 3: Energy and Magnetism		
	No performance objectives at this grade level	

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 6: Earth and Space Science		
Concept 1: Properties of Earth Materials		
Coding	**Performance Objective**	
SC01-S6C1-01	Describe the following basic Earth materials: • rocks • soil • water	6SC-F1-01 6SC-F1-02
SC01-S6C1-02	Compare the following physical properties of basic Earth materials: • color • texture • capacity to retain water	6SC-F1-01 6SC-F1-02
SC01-S6C1-03	Identify common uses (e.g., construction, decoration) of basic Earth materials (i.e., rocks, water, soil).	6SC-R4-02

† This PO is new to the Science Standard Articulated by Grade Level

CROSSWALK: Science Standard Articulated by Grade Level
to1997 Science Standard

Grade 1

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 6: Earth and Space Science		
Concept 1: Properties of Earth Materials		
Coding	**Performance Objective**	
SC01-S6C1-04	Identify the following as being natural resources: • air • water • soil • trees • wildlife	†
SC01-S6C1-05	Identify ways to conserve natural resources (e.g., reduce, reuse, recycle, find alternatives).	†
Concept 2: Objects in the Sky		
SC01-S6C2-01	Identify evidence that the Sun is the natural source of heat and light on the Earth (e.g., warm surfaces, shadows, shade).	6SC-R2-01
SC01-S6C2-02	Compare celestial objects (e.g., Sun, Moon, stars) and transient objects in the sky (e.g., clouds, birds, airplanes, contrails).	6SC-R1-01 6SC-F4-01
SC01-S6C2-03	Describe observable changes that occur in the sky, (e.g., clouds forming and moving, the position of the Moon).	6SC-R1-02 6SC-F4-02
Concept 3: Changes in the Earth and Sky		
SC01-S6C3-01	Identify the following characteristics of seasonal weather patterns: • temperature • type of precipitation • wind	6SC-F3-01 6SC-F3-02
SC01-S6C3-02	Analyze how the weather affects daily activities.	6SC-F6-02

† This PO is new to the Science Standard Articulated by Grade Level

CROSSWALK: Science Standard Articulated by Grade Level
to1997 Science Standard

Grade 2

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 1: Inquiry Process		
Concept 1: Observations, Questions, and Hypotheses		
Coding	**Performance Objective**	
SC02-S1C1-01	Formulate relevant questions about the properties of objects, organisms, and events in the environment. (See M02-S2C1-01)	†
SC02-S1C1-02	Predict the results of an investigation (e.g., in animal life cycles, phases of matter, the water cycle).	1SC-F1-03
Concept 2: Scientific Testing (Investigating and Modeling)		
SC02-S1C2-01	*Demonstrate safe behavior and appropriate procedures (e.g., use of instruments, materials, organisms) in all science inquiry.*	1SC-R1-01
SC02-S1C2-02	*Participate in guided investigations in life, physical, and Earth and space sciences.*	1SC-F1-04
SC02-S1C2-03	*Use simple tools such as rulers, thermometers, magnifiers, and balances to collect data (U.S. customary units). (See M02-S4C4-05 and M02-S4C4-06)*	1SC-R5-01
SC02-S1C2-04	*Record data from guided investigations in an organized and appropriate format (e.g., lab book, log, notebook, chart paper).* *(See W02-S3C2-01 and W02-S3C3-01)*	†
Concept 3: Analysis and Conclusions		
SC02-S1C3-01	Organize data using graphs (i.e., pictograph, tally chart), tables, and journals. (See M02-S2C1-02)	†
SC02-S1C3-02	Construct reasonable explanations of observations on the basis of data obtained (e.g., Based on the data, does this make sense? Could this really happen?). (See M02-S2C1-04)	†
SC02-S1C3-03	Compare the results of the investigation to predictions made prior to the investigation.	2SC-F3-02
SC02-S1C3-04	Generate questions for possible future investigations based on the conclusions of the investigation.	2SC-F2-02 2SC-F3-01

† This PO is new to the Science Standard Articulated by Grade Level

CROSSWALK: Science Standard Articulated by Grade Level to1997 Science Standard

Grade 2

Concept 4: Communication		
SC02-S1C4-01	Communicate the results and conclusions of an investigation (e.g., verbal, drawn, or written). (See M02-S2C1-02 and W02-S3C2-01)	1SC-F1-05
SC02-S1C4-02	*Communicate with other groups to describe the results of an investigation. (See LS-F1)*	†

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 2: History and Nature of Science		
Concept 1: History of Science as a Human Endeavor		
Coding	**Performance Objective**	
SC02-S2C1-01	*Identify how diverse people and/or cultures, past and present, have made important contributions to scientific innovations (e.g., Daniel Hale Williams [physician], supports Strand 4; Charles Drew [physician], supports Strand 4; Elizabeth Blackwell [physician], supports Strand 4).*	2SC-F1-01
SC02-S2C1-02	Identify science-related career opportunities.	3SC-F1-01
Concept 2: Nature of Scientific Knowledge		
SC02-S2C2-01	Identify components of familiar systems (e.g., organs of the digestive system, bicycle).	1SC-F4-01
SC02-S2C2-02	Identify the following characteristics of a system: • consists of multiple parts or subsystems • parts work interdependently	1SC-F4-02
SC02-S2C2-03	Identify parts of a system too small to be seen (e.g., plant and animal cells).	†

† This PO is new to the Science Standard Articulated by Grade Level

CROSSWALK: Science Standard Articulated by Grade Level
to1997 Science Standard

Grade 2

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 3: Science in Personal and Social Perspectives		
Concept 1: Changes in Environments		
Coding	**Performance Objective**	
	No performance objectives at this grade level	
Concept 2: Science and Technology in Society		
SC02-S3C2-01	Analyze how various technologies impact aspects of people's lives (e.g., entertainment, medicine, transportation, communication).	3SC-F4-02
SC02-S3C2-02	Describe important technological contributions made by people, past and present: • automobile – Henry Ford • airplane – Wilbur and Orville Wright • telephone – Alexander G. Bell	3SC-F4-01
SC02-S3C2-03	Identify a simple problem that could be solved by using a suitable tool.	3SC-F2-01

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 4: Life Science		
Concept 1: Characteristics of Organisms		
Coding	**Performance Objective**	
SC02-S4C1-01	Identify animal structures that serve different functions (e.g., sensory, defense, locomotion).	4SC-F3-01 4SC-F3-02
SC02-S4C1-02	Identify the following major parts of: • the digestive system – mouth, esophagus, stomach, small and large intestines • respiratory system – nose, trachea, lungs, diaphragm • circulatory system – heart, arteries, veins, blood (See 1CH-F3-01)	4SC-F5-01
SC02-S4C1-03	Describe the basic functions of the following systems: • digestive – breakdown and absorption of food, disposal of waste • respiratory – exchange of oxygen and carbon dioxide • circulatory – transportation of nutrients and oxygen throughout the body (See 1CH-F3-02)	1SC-F4-02

† This PO is new to the Science Standard Articulated by Grade Level

CROSSWALK: Science Standard Articulated by Grade Level
to1997 Science Standard

Grade 2

Concept 2: Life Cycles		
SC02-S4C2-01	Describe the life cycles of various insects.	4SC-F2-01 4SC-F2-02
SC02-S4C2-02	Describe the life cycles of various mammals.	4SC-F2-01 4SC-F2-02
SC02-S4C2-03	Compare the life cycles of various organisms.	4SC-F2-01 4SC-F2-02
Concept 3: Organisms and Environments		
	No performance objectives at this grade level	
Concept 4: Diversity, Adaptation, and Behavior		
	No performance objectives at this grade level	

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 5: Physical Science		
Concept 1: Properties of Objects and Materials		
Coding	**Performance Objective**	
SC02-S5C1-01	Describe objects in terms of measurable properties (e.g., length, volume, weight, temperature) using scientific tools. (See M02-S4C4-01 and M02-S4C4-02)	†
SC02-S5C1-02	Classify materials as solids, liquids, or gases.	5SC-F3-01
SC02-S5C1-03	Demonstrate that water can exist as a: • gas – vapor • liquid – water • solid – ice	5SC-F3-02
SC02-S5C1-04	Demonstrate that solids have a definite shape and that liquids and gases take the shape of their containers.	†
Concept 2: Position and Motion of Objects		
	No performance objectives at this grade level	
Concept 3: Energy and Magnetism		
	No performance objectives at this grade level	

† This PO is new to the Science Standard Articulated by Grade Level

CROSSWALK: Science Standard Articulated by Grade Level
to1997 Science Standard

Grade 2

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 6: Earth and Space Science		
Concept 1: Properties of Earth Materials		
Coding	**Performance Objective**	
	No performance objectives at this grade level	
Concept 2: Objects in the Sky		
	No performance objectives at this grade level	
Concept 3: Changes in the Earth and Sky		
SC02-S6C3-01	Measure weather conditions (e.g., temperature, precipitation). (See M02-S4C4-04 and M02-S4C4-05)	6SC-F7-01
SC02-S6C3-02	Record weather conditions (e.g., temperature, precipitation).	6SC-F7-02
SC02-S6C3-03	Identify the following types of clouds: • cumulus • stratus • cirrus	†
SC02-S6C3-04	Analyze the relationship between clouds, temperature, and weather patterns.	6SC-F7-03

† This PO is new to the Science Standard Articulated by Grade Level

CROSSWALK: Science Standard Articulated by Grade Level to1997 Science Standard

Grade 3

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 1: Inquiry Process		
Concept 1: Observations, Questions, and Hypotheses		
Coding	**Performance Objective**	
SC03-S1C1-01	Formulate relevant questions about the properties of objects, organisms, and events of the environment using observations and prior knowledge. (See M03-S2C1-01)	†
SC03-S1C1-02	Predict the results of an investigation based on observed patterns, not random guessing.	1SC-F1-03
Concept 2: Scientific Testing (Investigating and Modeling)		
SC03-S1C2-01	*Demonstrate safe behavior and appropriate procedures (e.g., use of instruments, materials, organisms) in all science inquiry.*	1SC-R1-01
SC03-S1C2-02	Plan a simple investigation (e.g., one plant receives adequate water, one receives too much water, and one receives too little water) based on the formulated questions.	1SC-F1-01 1SC-F1-02
SC03-S1C2-03	Conduct simple investigations (e.g., related to plant life cycles, changing the pitch of a sound, properties of rocks) in life, physical, and Earth and space sciences.	1SC-F1-04
SC03-S1C2-04	Use metric and U.S. customary units to measure objects. (See M03-S4C4-04)	†
SC03-S1C2-05	Record data in an organized and appropriate format (e.g., t-chart, table, list, written log). (See W03-S3C2-01 and W03-S3C3-01)	†
Concept 3: Analysis and Conclusions		
SC03-S1C3-01	Organize data using the following methods with appropriate labels: • bar graphs • pictographs • tally charts (See M03-S2C1-02)	†
SC03-S1C3-02	Construct reasonable interpretations of the collected data based on formulated questions. (See M03-S2C1-03)	†
SC03-S1C3-03	*Compare the results of the investigation to predictions made prior to the investigation.*	2SC-F3-02

† This PO is new to the Science Standard Articulated by Grade Level

Grade 3

SC03-S1C3-04	*Generate questions for possible future investigations based on the conclusions of the investigation.*	2SC-F2-02
SC03-S1C3-05	Record questions for further inquiry based on the conclusions of the investigation.	†
Concept 4: Communication		
SC03-S1C4-01	Communicate investigations and explanations using evidence and appropriate terminology. (See W03-S3C2-01)	1SC-F1-05
SC03-S1C4-02	Describe an investigation in ways that enable others to repeat it. (See W03-S3C2-01 and LS-F1)	†
SC03-S1C4-03	*Communicate with other groups to describe the results of an investigation.* *(See LS-E1)*	†

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 2: History and Nature of Science		
Concept 1: History of Science as a Human Endeavor		
Coding	**Performance Objective**	
SC03-S2C1-01	*Identify how diverse people and/or cultures, past and present, have made important contributions to scientific innovations (e.g., John Muir [naturalist], supports Strand 4; Thomas Edison [inventor], supports Strand 5; Mae Jemison [engineer, physician, astronaut], supports Strand 6,; Edmund Halley [scientist], supports Strand 6).*	2SC-F1-01
SC03-S2C1-02	Describe science-related career opportunities.	3SC-F1-01
Concept 2: Nature of Scientific Knowledge		
SC03-S2C2-01	Describe how, in a system (e.g., terrarium, house) with many components, the components usually influence one another.	1SC-F4-02
SC03-S2C2-02	Explain why a system may not work if a component is defective or missing.	1SC-F4-02

† This PO is new to the Science Standard Articulated by Grade Level

CROSSWALK: Science Standard Articulated by Grade Level
to1997 Science Standard

Grade 3

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 3: Science in Personal and Social Perspectives		
Concept 1: Changes in Environments		
Coding	**Performance Objective**	
SC03-S3C1-01	Describe the major factors that could impact a human population (e.g., famine, drought, disease, improved transportation, medical breakthroughs).	3SC-F3-02
SC03-S3C1-02	Describe the beneficial and harmful impacts of natural events and human activities on the environment (e.g., forest fires, flooding, pesticides).	6SC-F6-01 6SC-F6-02
Concept 2: Science and Technology in Society		
SC03-S3C2-01	Identify ways that people use tools and techniques to solve problems.	3SC-F4-02
SC03-S3C2-02	Describe the development of different technologies (e.g., communication, entertainment, transportation, medicine) in response to resources, needs, and values.	2SC-F2-01
SC03-S3C2-03	Design and construct a technological solution to a common problem or need using common materials.	3SC-F2-01 3SC-F2-02

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 4: Life Science		
Concept 1: Characteristics of Organisms		
Coding	**Performance Objective**	
SC03-S4C1-01	Describe the function of the following plant structures: • roots – absorb nutrients • stems – provide support • leaves – synthesize food • flowers – attract pollinators and produce seeds for reproduction	4SC-F3-03 4SC-F3-04
Concept 2: Life Cycles		
SC03-S4C2-01	Compare life cycles of various plants (e.g., conifers, flowering plants, ferns).	4SC-F2-01 4SC-F2-02
SC03-S4C2-02	Explain how growth, death, and decay are part of the plant life cycle.	4SC-F2-01 4SC-F2-02

† This PO is new to the Science Standard Articulated by Grade Level

CROSSWALK: Science Standard Articulated by Grade Level
to1997 Science Standard

Grade 3

Concept 3: Organisms and Environments		
SC03-S4C3-01	Identify the living and nonliving components of an ecosystem.	4SC-E7-01 4SC-E7-02
SC03-S4C3-02	Examine an ecosystem to identify microscopic and macroscopic organisms.	†
SC03-S4C3-03	Explain the interrelationships among plants and animals in different environments: • producers – plants • consumers – animals • decomposers – fungi, insects, bacteria	3SC-F3-02 4SC-F7-01 4SC-F7-03
SC03-S4C3-04	Describe how plants and animals cause change in their environment.	4SC-F1-01 4SC-F1-02
SC03-S4C3-05	Describe how environmental factors (e.g., soil composition, range of temperature, quantity and quality of light or water) in the ecosystem may affect a member organism's ability to grow, reproduce, and thrive.	4SC-F7-03
Concept 4: Diversity, Adaptation, and Behavior		
SC03-S4C4-01	Identify adaptations of plants and animals that allow them to live in specific environments.	4SC-F4-01 4SC-F4-02
SC03-S4C4-02	Describe ways that species adapt when introduced into new environments.	4SC-E5-01 4SC-E7-04
SC03-S4C4-03	Cite examples of how a species' inability to adapt to changing conditions in the ecosystem led to the extinction of that species.	†

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 5: Physical Science		
Concept 1: Properties of Objects and Materials		
Coding	**Performance Objective**	
	No performance objectives at this grade level	
Concept 2: Position and Motion of Objects		
	No performance objectives at this grade level	
Concept 3: Energy and Magnetism		
SC03-S5C3-01	Demonstrate that light can be: • reflected (with mirrors) • refracted (with prisms) • absorbed (by dark surfaces)	5SC-F4-01 5SC-F4-02 5SC-F4-03 5SC-F4-04

† This PO is new to the Science Standard Articulated by Grade Level

Grade 3

SC03-S5C3-02	Describe how light behaves on striking objects that are: • transparent (clear plastic) • translucent (waxed paper) • opaque (cardboard)	†
SC03-S5C3-03	Demonstrate that vibrating objects produce sound.	†
SC03-S5C3-04	Demonstrate that the pitch of a sound depends on the rate of the vibration (e.g., a long rubber band has a lower pitch than a short rubber band).	†

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 6: Earth and Space Science		
Concept 1: Properties of Earth Materials		
Coding	**Performance Objective**	
SC03-S6C1-01	Identify the layers of the Earth: • crust • mantle • core (inner and outer)	6SC-E3-01
SC03-S6C1-02	Describe the different types of rocks and how they are formed: • metamorphic • igneous • sedimentary	6SC-E3-02
SC03-S6C1-03	Classify rocks based on the following physical properties: • color • texture	6SC-F1-01 6SC-F1-02
SC03-S6C1-04	Describe fossils as a record of past life forms.	6SC-F8-01 6SC-F8-02 6SC-F8-03
SC03-S6C1-05	Describe how fossils are formed.	†
SC03-S6C1-06	Describe ways humans use Earth materials (e.g., fuel, building materials, growing food).	†
Concept 2: Objects in the Sky		
	No performance objectives at this grade level	
Concept 3: Changes in the Earth and Sky		
	No performance objectives at this grade level	

† This PO is new to the Science Standard Articulated by Grade Level

CROSSWALK: Science Standard Articulated by Grade Level to1997 Science Standard

Grade 4

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 1: Inquiry Process		
Concept 1: Observations, Questions, and Hypotheses		
Coding	**Performance Objective**	
SC04-S1C1-01	Differentiate inferences from observations.	†
SC04-S1C1-02	Formulate a relevant question through observations that can be tested by an investigation. (See M04-S2C1-01)	†
SC04-S1C1-03	Formulate predictions in the realm of science based on observed cause and effect relationships.	1SC-E1-03
SC04-S1C1-04	Locate information (e.g., book, article, website) related to an investigation. (See W04-S3C6-01 and R04-S3C1-05)	†
Concept 2: Scientific Testing (Investigating and Modeling)		
SC04-S1C2-01	*Demonstrate safe behavior and appropriate procedures (e.g., use and care of technology, materials, organisms) in all science inquiry.*	†
SC04-S1C2-02	Plan a simple investigation that identifies the variables to be controlled.	1SC-E1-02
SC04-S1C2-03	Conduct controlled investigations (e.g., related to erosion, plant life cycles, weather, magnetism) in life, physical, and Earth and space sciences.	†
SC04-S1C2-04	Measure using appropriate tools (e.g., ruler, scale, balance) and units of measure (i.e., metric, U.S. customary). (See M04-S4C4-03 and M04-S4C4-07)	†
SC04-S1C2-05	*Record data in an organized and appropriate format (e.g., t-chart, table, list, written log).* (See W04-S3C2-01 and W04-S3C3-01)	1SC-E3-01
Concept 3: Analysis and Conclusions		
SC04-S1C3-01	Analyze data obtained in a scientific investigation to identify trends. (See M04-S2C1-03)	†
SC04-S1C3-02	Formulate conclusions based upon identified trends in data. (See M04-S2C1-03)	1SC-E1-04
SC04-S1C3-03	Determine that data collected is consistent with the formulated question.	1SC-E6-02

† This PO is new to the Science Standard Articulated by Grade Level

CROSSWALK: Science Standard Articulated by Grade Level to1997 Science Standard

Grade 4

SC04-S1C3-04	Determine whether the data supports the prediction for an investigation.	1SC-E6-02
SC04-S1C3-05	Develop new questions and predictions based upon the data collected in the investigation.	1SC-E4-01 1SC-E4-02
Concept 4: Communication		
SC04-S1C4-01	Communicate verbally or in writing the results of an inquiry. (See W04-S3C3-01)	†
SC04-S1C4-02	Choose an appropriate graphic representation for collected data: • bar graph • line graph • Venn diagram • model (See M04-S2C1-02)	1SC-E3-02
SC04-S1C4-03	Communicate with other groups or individuals to compare the results of a common investigation.	†

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 2: History and Nature of Science		
Concept 1: History of Science as a Human Endeavor		
Coding	**Performance Objective**	
SC04-S2C1-01	*Identify how diverse people and/or cultures, past and present, have made important contributions to scientific innovations (e.g., Margaret Mead [anthropologist], supports Strand 4; Nikola Tesla [engineer, inventor] supports Strand 5; Michael Faraday [scientist], supports Strand 5; Benjamin Franklin [scientist], supports Strand 5).*	2SC-E1-01
SC04-S2C1-02	*Describe science-related career opportunities.*	3SC-E1-01
Concept 2: Nature of Scientific Knowledge		
SC04-S2C2-01	Explain the role of experimentation in scientific inquiry.	2SC-E5-02
SC04-S2C2-02	Describe the interaction of components in a system (e.g., flashlight, radio).	1SC-E5-01 1SC-E5-02 1SC-E5-03
SC04-S2C2-03	Explain various ways scientists generate ideas (e.g., observation, experiment, collaboration, theoretical and mathematical models).	2SC-E4-01

† This PO is new to the Science Standard Articulated by Grade Level

CROSSWALK: Science Standard Articulated by Grade Level
to1997 Science Standard

Grade 4

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 3: Science in Personal and Social Perspectives		
Concept 1: Changes in Environments		
Coding	**Performance Objective**	
SC04-S3C1-01	Describe how natural events and human activities have positive and negative impacts on environments (e.g., fire, floods, pollution, dams).	3SC-E2-01
SC04-S3C1-02	Evaluate the consequences of environmental occurrences that happen either rapidly (e.g., fire, flood, tornado) or over a long period of time (e.g., drought, melting ice caps, the greenhouse effect, erosion).	3SC-E2-02
Concept 2: Science and Technology in Society		
SC04-S3C2-01	Describe how science and technology (e.g., computers, air conditioning, medicine) have improved the lives of many people.	2SC-E1-02 (GR 6-8)
SC04-S3C2-02	Describe benefits (e.g., easy communications, rapid transportation) and risks (e.g., pollution, destruction of natural resources) related to the use of technology.	†
SC04-S3C2-03	*Design and construct a technological solution to a common problem or need using common materials.*	3SC-E3-01 3SC-E3-02 3SC-E3-03

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 4: Life Science		
Concept 1: Characteristics of Organisms		
Coding	**Performance Objective**	
SC04-S4C1-01	Compare structures in plants (e.g., roots, stems, leaves, flowers) and animals (e.g., muscles, bones, nerves) that serve different functions in growth and survival.	4SC-E4-01 4SC-E4-02
SC04-S4C1-02	Classify animals by identifiable group characteristics: • vertebrates – mammals, birds, fish, reptiles, amphibians • invertebrates – insects, arachnids	4SC-E1-01 4SC-E1-02
Concept 2: Life Cycles		
	No performance objectives at this grade level	

† This PO is new to the Science Standard Articulated by Grade Level

CROSSWALK: Science Standard Articulated by Grade Level to1997 Science Standard

Grade 4

Concept 3: Organisms and Environments		
SC04-S4C3-01	Describe ways various resources (e.g., air, water, plants, animals, soil) are utilized to meet the needs of a population.	4SC-E7-02 4SC-E7-03
SC04-S4C3-02	Differentiate renewable resources from nonrenewable resources.	†
SC04-S4C3-03	Analyze the effect that limited resources (e.g., natural gas, minerals) may have on an environment.	†
SC04-S4C3-04	Describe ways in which resources can be conserved (e.g., by reducing, reusing, recycling, finding substitutes).	†
Concept 4: Diversity, Adaptation, and Behavior		
SC04-S4C4-01	Recognize that successful characteristics of populations are inherited traits that are favorable in a particular environment.	4SC-E6-01 4SC-E6-02
SC04-S4C4-02	Give examples of adaptations that allow plants and animals to survive. • camouflage – horned lizards, coyotes • mimicry – Monarch and Viceroy butterflies • physical – cactus spines • mutualism – species of acacia that harbor ants, which repel other harmful insects	4SC-F4-01 4SC-F4-02

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 5: Physical Science		
Concept 1: Properties of Objects and Materials		
Coding	**Performance Objective**	
	No performance objectives at this grade level	
Concept 2: Position and Motion of Objects		
	No performance objectives at this grade level	
Concept 3: Energy and Magnetism		
SC04-S5C3-01	Demonstrate that electricity flowing in circuits can produce light, heat, sound, and magnetic effects.	5SC-E3-01 5SC-E3-02
SC04-S5C3-02	Construct series and parallel electric circuits.	†
SC04-S5C3-03	Explain the purpose of conductors and insulators in various practical applications.	†

† This PO is new to the Science Standard Articulated by Grade Level

Grade 4

SC04-S5C3-04	Investigate the characteristics of magnets (e.g., opposite poles attract, like poles repel, the force between two magnet poles depends on the distance between them).	†
SC04-S5C3-05	State cause and effect relationships between magnets and circuitry.	†

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 6: Earth and Space Science		
Concept 1: Properties of Earth Materials		
Coding	**Performance Objective**	
	No performance objectives at this grade level	
Concept 2: Earth's Processes and Systems		
SC04-S6C2-01	Identify the Earth processes that cause erosion.	6SC-E5-01
SC04-S6C2-02	Describe how currents and wind cause erosion and land changes.	6SC-F5-01 6SC-F5-02 6SC-F5-03
SC04-S6C2-03	Describe the role that water plays in the following processes that alter the Earth's surface features: • erosion • deposition • weathering	6SC-F5-01 6SC-F5-02 6SC-F5-03
SC04-S6C2-04	Compare rapid and slow processes that change the Earth's surface, including: • rapid – earthquakes, volcanoes, floods • slow – wind, weathering	6SC-F5-01 6SC-F5-02 6SC-F5-03
SC04-S6C2-05	Identify the Earth events that cause changes in atmospheric conditions (e.g., volcanic eruptions, forest fires).	6SC-E5-01 6SC-E5-02
SC04-S6C2-06	Analyze evidence that indicates life and environmental conditions have changed (e.g., tree rings, fish fossils in desert regions, ice cores).	6SC-E4-01 6SC-E4-02

† This PO is new to the Science Standard Articulated by Grade Level

CROSSWALK: Science Standard Articulated by Grade Level
to1997 Science Standard

Grade 4

Concept 3: Changes in the Earth and Sky		
SC04-S6C3-01	Identify the sources of water within an environment (e.g., ground water, surface water, atmospheric water, glaciers).	6SC-E6-01 6SC-E6-02
SC04-S6C3-02	Describe the distribution of water on the Earth's surface.	6SC-E6-01 6SC-E6-02
SC04-S6C3-03	Differentiate between weather and climate as they relate to the southwestern United States.	6SC-E8-01
SC04-S6C3-04	Measure changes in weather (e.g., precipitation, wind speed, barometric pressure).	†
SC04-S6C3-05	Interpret the symbols on a weather map or chart to identify the following: • temperatures • fronts • precipitation	6SC-E8-02
SC04-S6C3-06	Compare weather conditions in various locations (e.g., regions of Arizona, various U.S. cities, coastal vs. interior geographical regions).	†

† This PO is new to the Science Standard Articulated by Grade Level

CROSSWALK: Science Standard Articulated by Grade Level to1997 Science Standard

Grade 5

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 1: Inquiry Process		
Concept 1: Observations, Questions, and Hypotheses		
Coding	**Performance Objective**	
SC05-S1C1-01	*Formulate a relevant question through observations that can be tested by an investigation.* *(See M05-S2C1-01)*	†
SC05-S1C1-02	*Formulate predictions in the realm of science based on observed cause and effect relationships.*	1SC-E1-03
SC05-S1C1-03	*Locate information (e.g., book, article, website) related to an investigation.* *(See W05-S3C6-01and R05-S3C1-05)*	†
Concept 2: Scientific Testing (Investigating and Modeling)		
SC05-S1C2-01	*Demonstrate safe behavior and appropriate procedures (e.g., use and care of technology, materials, organisms) in all science inquiry.*	†
SC05-S1C2-02	*Plan a simple investigation that identifies the variables to be controlled.*	1SC-E1-02
SC05-S1C2-03	Conduct simple investigations (e.g., related to forces and motion, Earth processes) based on student-developed questions in life, physical, and Earth and space sciences.	†
SC05-S1C2-04	*Measure using appropriate tools (e.g., ruler, scale, balance) and units of measure (i.e., metric, U.S. customary).* *(See M05-S4C4-01)*	†
SC05-S1C2-05	*Record data in an organized and appropriate format (e.g., t-chart, table, list, written log).* *(See W05-S3C2-01 and W05-S3C3-01)*	1SC-E3-01
Concept 3: Analysis and Conclusions		
SC05-S1C3-01	Analyze data obtained in a scientific investigation to identify trends and form conclusions. (See M05-S2C1-03)	1SC-E1-04
SC05-S1C3-02	Analyze whether the data is consistent with the proposed explanation that motivated the investigation.	2SC-E3-02 2SC-E3-03
SC05-S1C3-03	Evaluate the reasonableness of the outcome of an investigation.	†
SC05-S1C3-04	Develop new investigations and predictions based on questions that arise from the findings of an investigation.	1SC-E4-01 1SC-E4-02

† This PO is new to the Science Standard Articulated by Grade Level

CROSSWALK: Science Standard Articulated by Grade Level to1997 Science Standard

Grade 5

SC05-S1C3-05	Identify possible relationships between variables in simple investigations (e.g., time and distance; incline and mass of object).	1SC-E1-02
Concept 4: Communication		
SC05-S1C4-01	*Communicate verbally or in writing the results of an inquiry.* *(See W05-S3C3-01)*	†
SC05-S1C4-02	*Choose an appropriate graphic representation for collected data:* • *bar graph* • *line graph* • *Venn diagram* • *model* *(See M05-S2C1-02)*	1SC-E3-02
SC05-S1C4-03	*Communicate with other groups or individuals to compare the results of a common investigation.*	†

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 2: History and Nature of Science		
Concept 1: History of Science as a Human Endeavor		
Coding	**Performance Objective**	
SC05-S2C1-01	*Identify how diverse people and/or cultures, past and present, have made important contributions to scientific innovations (e.g., Percy Lavon Julian [scientist], supports Strand 4; Niels Bohr [scientist], supports Strand 5; Edwin Hubble [scientist], supports Strand 6).*	2SC-E1-01
Concept 2: Nature of Scientific Knowledge		
SC05-S2C2-01	Provide examples that support the premise that science is an ongoing process that changes in response to new information and discoveries (e.g., space exploration, medical advances).	2SC-E2-01 2SC-E2-02 2SC-E6-02
SC05-S2C2-02	Explain the cycle by which new scientific knowledge generates new scientific inquiry.	2SC-E6-01 2SC-E6-02
SC05-S2C2-03	Describe how scientific knowledge is subject to modification and/or change as new information/technology challenges prevailing theories.	2SC-E6-01 2SC-E6-02 2SC-E5-03
SC05-S2C2-04	Compare collaborative approaches that scientists use for investigations (e.g., teams, individual with peer review).	2SC-E4-01

† This PO is new to the Science Standard Articulated by Grade Level

Grade 5

SC05-S2C2-05	Describe qualities of the scientists' habits of mind (e.g., openness, skepticism, integrity, tolerance).	†

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 3: Science in Personal and Social Perspectives		
Concept 1: Changes in Environments		
Coding	**Performance Objective**	
SC05-S3C1-01	Explain the impacts of natural hazards on habitats (e.g., global warming, floods, asteroid or large meteor impacts).	3SC-E2-01 3SC-E2-02
SC05-S3C1-02	Propose a solution, resource, or product that addresses a specific human, animal, or habitat need.	3SC-E3-01 3SC-E3-02 3SC-E3-03
SC05-S3C1-03	Evaluate the possible strengths and weaknesses of a proposed solution to a specific problem relevant to human, animal, or habitat needs.	3SC-E4-01
Concept 2: Science and Technology in Society		
SC05-S3C2-01	Describe the relationship between science and technology.	2SC-E2-01 2SC-E2-02
SC05-S3C2-02	Explain how scientific knowledge, skills, and technological capabilities are integral to a variety of careers.	3SC-E1-01
SC05-S3C2-03	*Design and construct a technological solution to a common problem or need using common materials.*	3SC-E3-01 3SC-E3-02 3SC-E3-03

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 4: Life Science		
Concept 1: Structure and Function in Living Systems		
Coding	**Performance Objective**	
SC05-S4C1-01	Identify the functions and parts of the skeletal system: • protection – rib cage, cranium • support – vertebrae • movement – pelvis, femur, hip	4SC-E4-01 4SC-E4-02
SC05-S4C1-02	Identify the following types of muscles: • cardiac – heart • smooth – stomach • skeletal – biceps	4SC-E3-02 4SC-E3-03

† This PO is new to the Science Standard Articulated by Grade Level

Grade 5

SC05-S4C1-03	Identify the functions and parts of the nervous system: • control center – brain • relay mechanism – spinal cord • transport messages – nerves	4SC-E4-01 4SC-E4-02
SC05-S4C1-04	Distinguish between voluntary and involuntary responses.	†
Concept 2: Reproduction and Heredity		
	No performance objectives at this grade level	
Concept 3: Populations of Organisms in an Ecosystem		
	No performance objectives at this grade level	
Concept 4: Diversity, Adaptation, and Behavior		
	No performance objectives at this grade level	

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 5: Physical Science		
Concept 1: Properties and Changes of Properties in Matter		
Coding	**Performance Objective**	
SC05-S5C1-01	Identify that matter is made of smaller units called: • molecules (e.g., H_2O, CO_2) • atoms (e.g., H, N, Na)	5SC-E2-02
SC05-S5C1-02	Distinguish between mixtures and compounds.	5SC-E2-01
SC05-S5C1-03	Describe changes of matter: • physical – cutting wood, ripping paper, freezing water • chemical – burning of wood, rusting of iron, milk turning sour	5SC-E4-03
Concept 2: Motion and Forces		
SC05-S5C2-01	Describe the following forces: • gravity • friction	5SC-E4-01
SC05-S5C2-02	Describe the various effects forces can have on an object (e.g., cause motion, halt motion, change direction of motion, cause deformation).	5SC-E4-02
SC05-S5C2-03	Examine forces and motion through investigations using simple machines (e.g., wedge, plane, wheel and axle, pulley, lever).	†
SC05-S5C2-04	Demonstrate effects of variables on an object's motion (e.g., incline angle, friction, applied forces).	5SC-E4-02 5SC-E4-03

† This PO is new to the Science Standard Articulated by Grade Level

Grade 5

Concept 3: Transfer of Energy		
	No performance objectives at this grade level	

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 6: Earth and Space Science		
Concept 1: Structure of the Earth		
Coding	**Performance Objective**	
	No performance objectives at this grade level	
Concept 2: Earth's Processes and Systems		
SC05-S6C2-01	Describe how the Moon's appearance changes during a four-week lunar cycle.	†
SC05-S6C2-02	Describe how Earth's rotation results in day and night at any particular location.	6SC-E1-02
SC05-S6C2-03	Distinguish between revolution and rotation.	6SC-E1-01
SC05-S6C2-04	Describe the role of gravity as an attractive force between celestial objects.	†
Concept 3: Earth in the Solar System		
SC05-S6C3-01	Identify the known planets of the solar system.	6SC-F2-01 6SC-F2-02
SC05-S6C3-02	Describe the distinguishing characteristics of the known planets in the solar system.	6SC-F2-02
SC05-S6C3-03	Describe various objects in the sky (e.g., asteroids, comets, stars, meteors/shooting stars).	6SC-E2-01
SC05-S6C3-04	Describe the change in position and motion of the following objects in the sky over time: • real motion – Moon, planets • apparent motion (due to the motion of the Earth) – Sun, Moon, stars	6SC-F4-03
SC05-S6C3-05	Explain the apparent motion of the Sun and stars.	†
SC05-S6C3-06	Describe efforts to explore space (e.g., Apollo missions, space shuttles, Hubble space telescope, space probes). (See Strand 2)	†

† This PO is new to the Science Standard Articulated by Grade Level

CROSSWALK: Science Standard Articulated by Grade Level to1997 Science Standard

Grade 6

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 1: Inquiry Process		
Concept 1: Observations, Questions, and Hypotheses		
Coding	**Performance Objective**	
SC06-S1C1-01	Differentiate among a question, hypothesis, and prediction.	1SC-E1-01 (GR 4-5)
SC06-S1C1-02	Formulate questions based on observations that lead to the development of a hypothesis. (See M06-S2C1-01)	2SC-E5-02 2SC-E5-03
SC06-S1C1-03	Locate research information, not limited to a single source, for use in the design of a controlled investigation. (See W06-S3C6-01, R06-S3C1-06, and R06-S3C2-03)	†
Concept 2: Scientific Testing (Investigating and Modeling)		
SC06-S1C2-01	*Demonstrate safe behavior and appropriate procedures (e.g., use and care of technology, materials, organisms) in all science inquiry.*	†
SC06-S1C2-02	Design an investigation to test individual variables using scientific processes.	1SC-E1-01
SC06-S1C2-03	Conduct a controlled investigation using scientific processes.	1SC-E1-02
SC06-S1C2-04	Perform measurements using appropriate scientific tools (e.g., balances, microscopes, probes, micrometers). (See M06-S4C4-02)	1SC-E1-02
SC06-S1C2-05	Keep a record of observations, notes, sketches, questions, and ideas using tools such as written and/or computer logs. *(See W06-S3C2-01 and W06-S3C3-01)*	†
Concept 3: Analysis and Conclusions		
SC06-S1C3-01	Analyze data obtained in a scientific investigation to identify trends. (See M06-S2C1-03)	1SC-E3-02 1SC-E1-03
SC06-S1C3-02	Form a logical argument about a correlation between variables or sequence of events (e.g., construct a cause-and-effect chain that explains a sequence of events).	1SC-E3-02 1SC-E2-02 1SC-E2-03
SC06-S1C3-03	Evaluate the observations and data reported by others.	1SC-E6-01 1SC-E4-01
SC06-S1C3-04	Interpret simple tables and graphs produced by others.	1SC-E4-01 1SC-E6-01

† This PO is new to the Science Standard Articulated by Grade Level

CROSSWALK: Science Standard Articulated by Grade Level to1997 Science Standard

Grade 6

SC06-S1C3-05	Analyze the results from previous and/or similar investigations to verify the results of the current investigation.	1SC-E4-01
SC06-S1C3-06	Formulate new questions based on the results of a completed investigation.	1SC-E4-02
Concept 4: Communication		
SC06-S1C4-01	Choose an appropriate graphic representation for collected data: • line graph • double bar graph • stem and leaf plot • histogram (See M06-S2C1-02)	1SC-E3-01
SC06-S1C4-02	Display data collected from a controlled investigation. (See M06-S2C1-02)	1SC-E3-01
SC06-S1C4-03	Communicate the results of an investigation with appropriate use of qualitative and quantitative information. (See W06-S3C2-01)	1SC-E1-03 1SC-E3-02
SC06-S1C4-04	Create a list of instructions that others can follow in carrying out a procedure (without the use of personal pronouns). (See W06-S3C3-01)	†
SC06-S1C4-05	Communicate the results and conclusion of the investigation. (See W06-S3C6-02)	†

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 2: History and Nature of Science		
Concept 1: History of Science as a Human Endeavor		
Coding	**Performance Objective**	
SC06-S2C1-01	*Identify how diverse people and/or cultures, past and present, have made important contributions to scientific innovations (e.g., Jacques Cousteau [inventor, marine explorer], supports Strand 4; William Beebe [scientist], supports Strand 4; Thor Heyerdahl [anthropologist], supports Strand 6).*	†
SC06-S2C1-02	Describe how a major milestone in science or technology has revolutionized the thinking of the time (e.g., Cell Theory, sonar, SCUBA, underwater robotics).	2SC-E1-01

† This PO is new to the Science Standard Articulated by Grade Level

Grade 6

SC06-S2C1-03	Analyze the impact of a major scientific development occurring within the past decade.	2SC-E1-02
SC06-S2C1-04	Describe the use of technology in science-related careers.	3SC-E1-01
Concept 2: Nature of Scientific Knowledge		
SC06-S2C2-01	Describe how science is an ongoing process that changes in response to new information and discoveries.	2SC-E6-01 2SC-E6-02 2SC-E6-03 2SC-E6-04
SC06-S2C2-02	Describe how scientific knowledge is subject to change as new information and/or technology challenges prevailing theories.	2SC-E2-01 2SC-E2-02 2SC-E2-03
SC06-S2C2-03	Apply the following scientific processes to other problem solving or decision making situations: • observing • questioning • communicating • comparing • measuring • classifying • predicting • organizing data • inferring • generating hypotheses • identifying variables	2SC-E4-01

Science Standard Articulated by Grade Level Strand 3: Science in Personal and Social Perspectives		1997 Arizona Academic Content Standard: Science
Concept 1: Changes in Environments		
Coding	**Performance Objective**	
SC06-S3C1-01	Evaluate the effects of the following natural hazards: • sandstorm • hurricane • tornado • ultraviolet light • lightning-caused fire	3SC-E2-01
SC06-S3C1-02	Describe how people plan for, and respond to, the following natural disasters: • drought • flooding • tornadoes	†
Concept 2: Science and Technology in Society		
SC06-S3C2-01	Propose viable methods of responding to an identified need or problem.	3SC-E4-01 3SC-E3-01

† This PO is new to the Science Standard Articulated by Grade Level

Grade 6

SC06-S3C2-02	Compare possible solutions to best address an identified need or problem.	3SC-E3-01 3SC-E4-02
SC06-S3C2-03	Design and construct a solution to an identified need or problem using simple classroom materials.	3SC-E3-01 3SC-E4-02
SC06-S3C2-04	Describe a technological discovery that influences science.	†

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 4: Life Science		
Concept 1: Structure and Function in Living Systems		
Coding	**Performance Objective**	
SC06-S4C1-01	Explain the importance of water to organisms.	†
SC06-S4C1-02	Describe the basic structure of a cell, including: • cell wall • cell membrane • nucleus	4SC-E2-01
SC06-S4C1-03	Describe the function of each of the following cell parts: • cell wall • cell membrane • nucleus	4SC-E2-01
SC06-S4C1-04	Differentiate between plant and animal cells.	4SC-E2-02
SC06-S4C1-05	Explain the hierarchy of cells, tissues, organs, and systems.	4SC-E3-01
SC06-S4C1-06	Relate the following structures of living organisms to their functions: Animals • respiration – gills, lungs • digestion – stomach, intestines • circulation – heart, veins, arteries, capillaries • locomotion – muscles, skeleton Plants • transpiration – stomata, roots, xylem, phloem • absorption – roots, xylem, phloem • response to stimulus (phototropism, hydrotropism, geotropism) – roots, xylem, phloem	4SC-E3-03 4SC-E3-04

† This PO is new to the Science Standard Articulated by Grade Level

Grade 6

SC06-S4C1-07	Describe how the various systems of living organisms work together to perform a vital function: • respiratory and circulatory • muscular and skeletal • digestive and excretory	4SC-E4-01
Concept 2: Reproduction and Heredity		
	No performance objectives at this grade level	
Concept 3: Populations of Organisms in an Ecosystem		
SC06-S4C3-01	Explain that sunlight is the major source of energy for most ecosystems. (See Strand 5 Concept 3 and Strand 6 Concept 2)	4SC-E7-01
SC06-S4C3-02	Describe how the following environmental conditions affect the quality of life: • water quality • climate • population density • smog	†
Concept 4: Diversity, Adaptation, and Behavior		
	No performance objectives at this grade level	

† This PO is new to the Science Standard Articulated by Grade Level

CROSSWALK: Science Standard Articulated by Grade Level
to1997 Science Standard

Grade 6

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 5: Physical Science		
Concept 1: Properties and Changes of Properties in Matter		
Coding	**Performance Objective**	
	No performance objectives at this grade level	
Concept 2: Motion and Forces		
	No performance objectives at this grade level	
Concept 3: Transfer of Energy		
SC06-S5C3-01	Identify various ways in which electrical energy is generated using renewable and nonrenewable resources (e.g., wind, dams, fossil fuels, nuclear reactions).	5SC-E3-01 (GR 4-5)
SC06-S5C3-02	Identify several ways in which energy may be stored.	†
SC06-S5C3-03	Compare the following ways in which energy may be transformed: • mechanical to electrical • electrical to thermal	†
SC06-S5C3-04	Explain how thermal energy (heat energy) can be transferred by: • conduction • convection • radiation	†

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 6: Earth and Space Science		
Concept 1: Structure of the Earth		
Coding	**Performance Objective**	
SC06-S6C1-01	Describe the properties and the composition of the layers of the atmosphere.	6SC-E9-01
SC06-S6C1-02	Explain the composition, properties, and structure of the Earth's lakes and rivers.	6SC-E7-01 6SC-E7-02 6SC-E7-03
SC06-S6C1-03	Explain the composition, properties, and structures of the oceans' zones and layers.	6SC-E7-01 6SC-E7-02 6SC-E7-03
SC06-S6C1-04	Analyze the interactions between the Earth's atmosphere and the Earth's bodies of water (water cycle).	6SC-E6-01 6SC-E6-02

† This PO is new to the Science Standard Articulated by Grade Level

Grade 6

SC06-S6C1-05	Describe ways scientists explore the Earth's atmosphere and bodies of water. (See Strand 2 Concept 1)	†
Concept 2: Earth's Processes and Systems		
SC06-S6C2-01	Explain how water is cycled in nature.	6SC-E6-01 (GR 4-5)
SC06-S6C2-02	Identify the distribution of water within or among the following: • atmosphere • lithosphere • hydrosphere	6SC-E6-02 (GR 4-5)
SC06-S6C2-03	Analyze the effects that bodies of water have on the climate of a region.	†
SC06-S6C2-04	Analyze the following factors that affect climate: • ocean currents • elevation • location	†
SC06-S6C2-05	Analyze the impact of large-scale weather systems on the local weather.	6SC-E8-02
SC06-S6C2-06	Create a weather system model that includes: • the Sun • the atmosphere • bodies of water	6SC-E8-01
Concept 3: Earth in the Solar System		
	No performance objectives at this grade level	

† This PO is new to the Science Standard Articulated by Grade Level

CROSSWALK: Science Standard Articulated by Grade Level to1997 Science Standard

Grade 7

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 1: Inquiry Process		
Concept 1: Observations, Questions, and Hypotheses		
Coding	**Performance Objective**	
SC07-S1C1-01	*Formulate questions based on observations that lead to the development of a hypothesis.* *(See M07-S2C1-01)*	2SC-E5-02 2SC-E5-03
SC07-S1C1-02	Select appropriate resources for background information related to a question, for use in the design of a controlled investigation. (See W07-S3C6-01, R07-S3C1-06, and R07-S3C2-03)	†
SC07-S1C1-03	Explain the role of a hypothesis in a scientific inquiry.	2SC-E5-02 2SC-E5-03
Concept 2: Scientific Testing (Investigating and Modeling)		
SC07-S1C2-01	*Demonstrate safe behavior and appropriate procedures (e.g., use and care of technology, materials, organisms) in all science inquiry.*	†
SC07-S1C2-02	*Design an investigation to test individual variables using scientific processes.*	1SC-E1-01
SC07-S1C2-03	Conduct a controlled investigation, utilizing multiple trials, to test a hypothesis using scientific processes.	1SC-E1-02
SC07-S1C2-04	*Perform measurements using appropriate scientific tools (e.g., balances, microscopes, probes, micrometers).*	1SC-E1-02
SC07-S1C2-05	*Keep a record of observations, notes, sketches, questions, and ideas using tools such as written and/or computer logs.* *(See W07-S3C2-01 and W07-S3C3-01)*	†
Concept 3: Analysis and Conclusions		
SC07-S1C3-01	*Analyze data obtained in a scientific investigation to identify trends.* *(See M07-S2C1-07 and M07-S2C1-08)*	1SC-E3-02 1SC-E1-03
SC07-S1C3-02	*Form a logical argument about a correlation between variables or sequence of events (e.g., construct a cause-and-effect chain that explains a sequence of events).*	1SC-E2-02 1SC-E2-03 1SC-E3-02
SC07-S1C3-03	Analyze results of data collection in order to accept or reject the hypothesis.	1SC-E1-03
SC07-S1C3-04	Determine validity and reliability of results of an investigation.	1SC-E6-01
SC07-S1C3-05	Formulate a conclusion based on data analysis.	1SC-E1-04 (GR 4-5)

† This PO is new to the Science Standard Articulated by Grade Level

CROSSWALK: Science Standard Articulated by Grade Level to1997 Science Standard

Grade 7

SC07-S1C3-06	Refine hypotheses based on results from investigations.	1SC-E4-02
SC07-S1C3-07	Formulate new questions based on the results of a previous investigation.	1SC-E4-02
Concept 4: Communication		
SC07-S1C4-01	*Choose an appropriate graphic representation for collected data:* • *line graph* • *double bar graph* • *stem and leaf plot* • *histogram* *(See M07-S2C1-03)*	1SC-E3-01
SC07-S1C4-02	*Display data collected from a controlled investigation.* *(See M07-S2C1-03)*	1SC-E3-01
SC07-S1C4-03	*Communicate the results of an investigation with appropriate use of qualitative and quantitative information.* *(See W07-S3C2-01)*	1SC-E1-03 1SC-E3-02
SC07-S1C4-04	Write clear, step-by-step instructions for following procedures (without the use of personal pronouns). (See W07-S3C3-01)	†
SC07-S1C4-05	*Communicate the results and conclusion of the investigation.* *(See W07-S3C6-02)*	†

† This PO is new to the Science Standard Articulated by Grade Level

CROSSWALK: Science Standard Articulated by Grade Level to1997 Science Standard

Grade 7

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 2: History and Nature of Science		
Concept 1: History of Science as a Human Endeavor		
Coding	**Performance Objective**	
SC07-S2C1-01	*Identify how diverse people and/or cultures, past and present, have made important contributions to scientific innovations (e.g., Rachel Carson [scientist], supports Strand 4; Luis Alvarez [scientist] and Walter Alvarez [scientist], support Strand 6; Percival Lowell [scientist], supports Strand 6; Copernicus [scientist], supports Strand 6).*	†
SC07-S2C1-02	*Describe how a major milestone in science or technology has revolutionized the thinking of the time (e.g., global positioning system, telescopes, seismographs, photography).*	2SC-E1-01
SC07-S2C1-03	*Analyze the impact of a major scientific development occurring within the past decade.*	2SC-E1-02
SC07-S2C1-04	Analyze the use of technology in science-related careers.	3SC-E1-01
Concept 2: Nature of Scientific Knowledge		
SC07-S2C2-01	*Describe how science is an ongoing process that changes in response to new information and discoveries.*	2SC-E6-01 2SC-E6-02 2SC-E6-03 2SC-E6-04
SC07-S2C2-02	*Describe how scientific knowledge is subject to change as new information and/or technology challenges prevailing theories.*	2SC-E2-01 2SC-E2-02 2SC-E2-03
SC07-S2C2-03	*Apply the following scientific processes to other problem solving or decision making situations:* • *observing* • *questioning* • *communicating* • *comparing* • *measuring* • *classifying* • *predicting* • *organizing data* • *inferring* • *generating hypotheses* • *identifying variables*	2SC-E4-01

† This PO is new to the Science Standard Articulated by Grade Level

CROSSWALK: Science Standard Articulated by Grade Level to1997 Science Standard

Grade 7

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 3: Science in Personal and Social Perspectives		
Concept 1: Changes in Environments		
Coding	**Performance Objective**	
SC07-S3C1-01	Analyze environmental risks (e.g., pollution, destruction of habitat) caused by human interaction with biological or geological systems.	3SC-E2-01
SC07-S3C1-02	Analyze environmental benefits of the following human interactions with biological or geological systems: • reforestation • habitat restoration • construction of dams	†
SC07-S3C1-03	Propose possible solutions to address the environmental risks in biological or geological systems.	3SC-E3-01
Concept 2: Science and Technology in Society		
SC07-S3C2-01	*Propose viable methods of responding to an identified need or problem.*	3SC-E4-01 3SC-E3-01
SC07-S3C2-02	*Compare solutions to best address an identified need or problem.*	3SC-E3-01 3SC-E4-02
SC07-S3C2-03	*Design and construct a solution to an identified need or problem using simple classroom materials.*	3SC-E3-01 3SC-E4-01
SC07-S3C2-04	Describe a scientific discovery that influences technology.	†

† This PO is new to the Science Standard Articulated by Grade Level

CROSSWALK: Science Standard Articulated by Grade Level
to1997 Science Standard

Grade 7

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 4: Life Science		
Concept 1: Structure and Function in Living Systems		
Coding	**Performance Objective**	
	No performance objectives at this grade level	
Concept 2: Reproduction and Heredity		
	No performance objectives at this grade level	
Concept 3: Populations of Organisms in an Ecosystem		
SC07-S4C3-01	Compare food chains in a specified ecosystem and their corresponding food web.	†
SC07-S4C3-02	Explain how organisms obtain and use resources to develop and thrive in: • niches • predator/prey relationships	†
SC07-S4C3-03	Analyze the interactions of living organisms with their ecosystems: • limiting factors • carrying capacity	4SC-E7-01
SC07-S4C3-04	Evaluate data related to problems associated with population growth (e.g., overgrazing, forest management, invasion of non-native species) and the possible solutions.	†
SC07-S4C3-05	Predict how environmental factors (e.g., floods, droughts, temperature changes) affect survival rates in living organisms.	†
SC07-S4C3-06	Create a model of the interactions of living organisms within an ecosystem.	4SC-E7-02 1SC-E2-01
Concept 4: Diversity, Adaptation, and Behavior		
	No performance objectives at this grade level	

† This PO is new to the Science Standard Articulated by Grade Level

CROSSWALK: Science Standard Articulated by Grade Level
to1997 Science Standard

Grade 7

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 5: Physical Science		
Concept 1: Properties and Changes of Properties in Matter		
Coding	**Performance Objective**	
	No performance objectives at this grade level	
Concept 2: Motion and Forces		
	No performance objectives at this grade level	
Concept 3: Transfer of Energy		
	No performance objectives at this grade level	

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 6: Earth and Space Science		
Concept 1: Structure of the Earth		
Coding	**Performance Objective**	
SC07-S6C1-01	Classify rocks and minerals by the following observable properties: • grain • color • texture • hardness	†
SC07-S6C1-02	Describe the properties and the composition of the following major layers of the Earth: • crust • mantle • core	†
SC07-S6C1-03	Explain the following processes involved in the formation of the Earth's structure: • erosion • deposition • plate tectonics • volcanism	6SC-E3-01
SC07-S6C1-04	Describe how the rock and fossil record show that environmental conditions have changed over geologic and recent time.	6SC-E4-01

† This PO is new to the Science Standard Articulated by Grade Level

CROSSWALK: Science Standard Articulated by Grade Level to1997 Science Standard

Grade 7

Concept 2: Earth's Processes and Systems		
SC07-S6C2-01	Explain the rock cycle.	†
SC07-S6C2-02	Distinguish the components and characteristics of the rock cycle for the following types of rocks: • igneous • metamorphic • sedimentary	†
SC07-S6C2-03	Analyze the evidence that lithospheric plate movements occur.	6SC-E5-01
SC07-S6C2-04	Explain lithospheric plate movement as a result of convection.	6SC-E5-01
SC07-S6C2-05	Relate plate boundary movements to their resulting landforms, including: • mountains • faults • rift valleys • trenches • volcanoes	6SC-E3-01
SC07-S6C2-06	Describe how earthquakes are measured.	†
Concept 3: Earth in the Solar System		
SC07-S6C3-01	Explain the phases of the Moon in terms of the relative positions of the Earth, Sun, and Moon.	6SC-E1-01
SC07-S6C3-02	Construct a model for the relative positions of the Earth, Sun, and Moon as they relate to corresponding eclipses.	†
SC07-S6C3-03	Explain the interrelationship between the Earth's tides and the Moon.	†
SC07-S6C3-04	Explain the seasons in the Northern and Southern Hemispheres in terms of the tilt of the Earth's axis relative to the Earth's revolution around the Sun.	6SC-E1-01
SC07-S6C3-05	Identify the following major constellations visible (seasonally) from the Northern Hemisphere: • Orion • Ursa Major (Great Bear) • Cygnus • Scorpius • Cassiopeia	6SC-E2-01
SC07-S6C3-06	Explain the relationship among common objects in the solar system, galaxy, and the universe.	6SC-E2-02

† This PO is new to the Science Standard Articulated by Grade Level

CROSSWALK: Science Standard Articulated by Grade Level to1997 Science Standard

Grade 8

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 1: Inquiry Process		
Concept 1: Observations, Questions, and Hypotheses		
Coding	**Performance Objective**	
SC08-S1C1-01	*Formulate questions based on observations that lead to the development of a hypothesis.* *(See M08-S2C1-01)*	2SC-E5-02 2SC-E5-03
SC08-S1C1-02	Use appropriate research information, not limited to a single source, to use in the development of a testable hypothesis. (See W08-S3C6-01, R08-S3C1-06, and R08-S3C2-03)	†
SC08-S1C1-03	Generate a hypothesis that can be tested.	†
Concept 2: Scientific Testing (Investigating and Modeling)		
SC08-S1C2-01	*Demonstrate safe behavior and appropriate procedures (e.g., use and care of technology, materials, organisms) in all science inquiry.*	†
SC08-S1C2-02	Design a controlled investigation to support or reject a hypothesis.	1SC-E1-01
SC08-S1C2-03	Conduct a controlled investigation to support or reject a hypothesis.	1SC-E1-02
SC08-S1C2-04	*Perform measurements using appropriate scientific tools (e.g., balances, microscopes, probes, micrometers).*	1SC-E1-02
SC08-S1C2-05	*Keep a record of observations, notes, sketches, questions, and ideas using tools such as written and/or computer logs.* *(See W08-S3C2-01 and W08-S3C3-01)*	†
Concept 3: Analysis and Conclusions		
SC08-S1C3-01	*Analyze data obtained in a scientific investigation to identify trends.* *(See M08-S2C1-08)*	1SC-E1-03 1SC-E3-02
SC08-S1C3-02	*Form a logical argument about a correlation between variables or sequence of events (e.g., construct a cause-and-effect chain that explains a sequence of events).*	1SC-E2-02 1SC-E2-03 1SC-E3-02
SC08-S1C3-03	Interpret data that show a variety of possible relationships between two variables, including: • positive relationship • negative relationship • no relationship	1SC-E2-02 1SC-E2-03

† This PO is new to the Science Standard Articulated by Grade Level

Grade 8

SC08-S1C3-04	Formulate a future investigation based on the data collected.	3SC-E4-01 3SC-E4-02
SC08-S1C3-05	Explain how evidence supports the validity and reliability of a conclusion.	1SC-E6-01
SC08-S1C3-06	Identify the potential investigational error that may occur (e.g., flawed investigational design, inaccurate measurement, computational errors, unethical reporting).	1SC-E6-01 2SC-E5-03
SC08-S1C3-07	Critique scientific reports from periodicals, television, or other media.	1SC-E6-01 2SC-E3-01 2SC-E3-02
SC08-S1C3-08	*Formulate new questions based on the results of a previous investigation.*	1SC-E4-02
Concept 4: Communication		
SC08-S1C4-01	Communicate the results of an investigation.	1SC-E1-04
SC08-S1C4-02	*Choose an appropriate graphic representation for collected data:* • *line graph* • *double bar graph* • *stem and leaf plot* • *histogram* *(See M08-S2C1-03)*	1SC-E3-02
SC08-S1C4-03	Present analyses and conclusions in clear, concise formats. (See W08-S3C6-02)	†
SC08-S1C4-04	Write clear, step-by-step instructions for conducting investigations or operating equipment (without the use of personal pronouns). (See W08-S3C3-01)	†
SC08-S1C4-05	*Communicate the results and conclusion of the investigation.* *(See W08-S3C6-02)*	1SC-E1-04

† This PO is new to the Science Standard Articulated by Grade Level

CROSSWALK: Science Standard Articulated by Grade Level to1997 Science Standard

Grade 8

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 2: History and Nature of Science		
Concept 1: History of Science as a Human Endeavor		
Coding	**Performance Objective**	
SC08-S2C1-01	*Identify how diverse people and/or cultures, past and present, have made important contributions to scientific innovations (e.g., Watson and Crick [scientists], support Strand 4; Rosalind Franklin [scientist], supports Strand 4; Charles Darwin [scientist], supports Strand 4; George Washington Carver [scientist, inventor], supports Strand 4; Joseph Priestley [scientist], supports Strand 5; Sir Frances Bacon [philosopher], supports Strand 5; Isaac Newton [scientist], supports Strand 5).*	†
SC08-S2C1-02	Evaluate the effects of the following major scientific milestones on society: • Mendelian Genetics • Newton's Laws	†
SC08-S2C1-03	Evaluate the impact of a major scientific development occurring within the past decade.	2SC-E1-02
SC08-S2C1-04	Evaluate career opportunities related to life and physical sciences.	3SC-E1-01
Concept 2: Nature of Scientific Knowledge		
SC08-S2C2-01	*Apply the following scientific processes to other problem solving or decision making situations:* • *observing* • *questioning* • *communicating* • *comparing* • *measuring* • *classifying* • *predicting* • *organizing data* • *inferring* • *generating hypotheses* • *identifying variables*	2SC-E4-01
SC08-S2C2-02	*Describe how scientific knowledge is subject to change as new information and/or technology challenges prevailing theories.*	2SC-E2-01 2SC-E2-02 2SC-E2-03
SC08-S2C2-03	Defend the principle that accurate record keeping, openness, and replication are essential for maintaining an investigator's credibility with other scientists and society.	1SC-E6-01
SC08-S2C2-04	Explain why scientific claims may be questionable if based on very small samples of data, biased samples, or samples for which there was no control.	1SC-E6-01

† This PO is new to the Science Standard Articulated by Grade Level

CROSSWALK: Science Standard Articulated by Grade Level to1997 Science Standard

Grade 8

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 3: Science in Personal and Social Perspectives		
Concept 1: Changes in Environments		
Coding	**Performance Objective**	
SC08-S3C1-01	Analyze the risk factors associated with natural, human induced, and/or biological hazards, including: • waste disposal of industrial chemicals • greenhouse gases	3SC-E2-01
SC08-S3C1-02	Analyze possible solutions to address the environmental risks associated with chemicals and biological systems.	3SC-E3-01
Concept 2: Science and Technology in Society		
SC08-S3C2-01	*Propose viable methods of responding to an identified need or problem.*	3SC-E3-01 3SC-E4-01
SC08-S3C2-02	*Compare solutions to best address an identified need or problem.*	3SC-E3-01 3SC-E4-02
SC08-S3C2-03	*Design and construct a solution to an identified need or problem using simple classroom materials.*	3SC-E3-01 3SC-E4-01
SC08-S3C2-04	Compare risks and benefits of the following technological advances: • radiation treatments • genetic engineering (See Strand 4 Concept 2) • airbags (See Strand 5 Concept 2)	2SC-E2-01 2SC-E2-02

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 4: Life Science		
Concept 1: Structure and Function in Living Systems		
Coding	**Performance Objective**	
	No performance objectives at this grade level	
Concept 2: Reproduction and Heredity		
SC08-S4C2-01	Explain the purposes of cell division: • growth and repair • reproduction	†
SC08-S4C2-02	Explain the basic principles of heredity using the human examples of: • eye color • widow's peak • blood type	4SC-E6-01

† This PO is new to the Science Standard Articulated by Grade Level

Grade 8

SC08-S4C2-03	Distinguish between the nature of dominant and recessive traits in humans.	4SC-E6-02
Concept 3: Populations of Organisms in an Ecosystem		
	No performance objectives at this grade level	
Concept 4: Diversity, Adaptation, and Behavior		
SC08-S4C4-01	Explain how an organism's behavior allows it to survive in an environment.	4SC-P7-02
SC08-S4C4-02	Describe how an organism can maintain a stable internal environment while living in a constantly changing external environment.	4SC-P7-01 4SC-P7-02
SC08-S4C4-03	Determine characteristics of organisms that could change over several generations.	4SC-E5-01 4SC-P6-01 4SC-P6-02
SC08-S4C4-04	Compare the symbiotic and competitive relationships in organisms within an ecosystem (e.g., lichen, mistletoe/tree, clownfish/sea anemone, native/non-native species).	†
SC08-S4C4-05	Analyze the following behavioral cycles of organisms: • hibernation • migration • dormancy (plants)	†
SC08-S4C4-06	Describe the following factors that allow for the survival of living organisms: • protective coloration • beak design • seed dispersal • pollination	†

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 5: Physical Science		
Concept 1: Properties and Changes of Properties in Matter		
Coding	**Performance Objective**	
SC08-S5C1-01	Identify different kinds of matter based on the following physical properties: • states • density • boiling point • melting point • solubility	5SC-E1-01 5SC-E4-01 5SC-E4-02

† This PO is new to the Science Standard Articulated by Grade Level

CROSSWALK: Science Standard Articulated by Grade Level to1997 Science Standard

Grade 8

SC08-S5C1-02	Identify different kinds of matter based on the following chemical properties: • reactivity • pH • oxidation (corrosion)	5SC-E1-01 5SC-E1-02 5SC-E4-01 5SC-E4-02
SC08-S5C1-03	Identify the following types of evidence that a chemical reaction has occurred: • formation of a precipitate • generation of gas • color change • absorption or release of heat	†
SC08-S5C1-04	Classify matter in terms of elements, compounds, or mixtures.	5SC-E1-01 5SC-E2-01
SC08-S5C1-05	Classify mixtures as being homogeneous or heterogeneous.	5SC-E1-03 (GR 4-5)
SC08-S5C1-06	Explain the systematic organization of the periodic table.	5SC-E2-01
SC08-S5C1-07	Investigate how the transfer of energy can affect the physical and chemical properties of matter.	5SC-E3-02
Concept 2: Motion and Forces		
SC08-S5C2-01	Demonstrate velocity as the rate of change of position over time.	5SC-E5-01
SC08-S5C2-02	Identify the conditions under which an object will continue in its state of motion (Newton's 1st Law of Motion).	5SC-E5-01
SC08-S5C2-03	Describe how the acceleration of a body is dependent on its mass and the net applied force (Newton's 2nd Law of Motion).	5SC-E5-01
SC08-S5C2-04	Describe forces as interactions between bodies (Newton's 3rd Law of Motion).	5SE-E5-01
SC08-S5C2-05	Create a graph devised from measurements of moving objects and their interactions, including: • position-time graphs • velocity-time graphs	†
Concept 3: Transfer of Energy		
	No performance objectives at this grade level	

† This PO is new to the Science Standard Articulated by Grade Level

CROSSWALK: Science Standard Articulated by Grade Level
to1997 Science Standard

Grade 8

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 6: Earth and Space Science		
Concept 1: Structure of the Earth		
Coding	**Performance Objective**	
	No performance objectives at this grade level	
Concept 2: Earth's Processes and Systems		
	No performance objectives at this grade level	
Concept 3: Earth in the Solar System		
	No performance objectives at this grade level	

† This PO is new to the Science Standard Articulated by Grade Level

CROSSWALK: Science Standard Articulated by Grade Level to 1997 Science Standard

High School

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 1: Inquiry Process		
Concept 1: Observations, Questions, and Hypotheses		
Coding	**Performance Objective**	
SCHS-S1C1-01	Evaluate scientific information for relevance to a given problem. (See R09-S3C1, R10-S3C1, R11-S3C1, and R12-S3C1)	1SC-P1-01
SCHS-S1C1-02	Develop questions from observations that transition into testable hypotheses.	†
SCHS-S1C1-03	Formulate a testable hypothesis.	1SC-P6-01
SCHS-S1C1-04	Predict the outcome of an investigation based on prior evidence, probability, and/or modeling (not guessing or inferring).	†
Concept 2: Scientific Testing (Investigating and Modeling)		
SCHS-S1C2-01	Demonstrate safe and ethical procedures (e.g., use and care of technology, materials, organisms) and behavior in all science inquiry.	†
SCHS-S1C2-02	Identify the resources needed to conduct an investigation.	†
SCHS-S1C2-03	Design an appropriate protocol (written plan of action) for testing a hypothesis: • Identify dependent and independent variables in a controlled investigation. • Determine an appropriate method for data collection (e.g., using balances, thermometers, microscopes, spectrophotometer, using qualitative changes). • Determine an appropriate method for recording data (e.g., notes, sketches, photographs, videos, journals (logs), charts, computers/calculators).	1SC-P4-01 1SC-P4-02
SCHS-S1C2-04	Conduct a scientific investigation that is based on a research design.	1SC-P1-02 1SC-P6-02
SCHS-S1C2-05	Record observations, notes, sketches, questions, and ideas using tools such as journals, charts, graphs, and computers.	†

† This PO is new to the Science Standard Articulated by Grade Level

CROSSWALK: Science Standard Articulated by Grade Level to 1997 Science Standard

High School

Concept 3: Analysis, Conclusions, and Refinements		
SCHS-S1C3-01	*Interpret data that show a variety of possible relationships between variables, including:* • *positive relationship* • *negative relationship* • *no relationship*	1SC-P6-03
SCHS-S1C3-02	Evaluate whether investigational data support or do not support the proposed hypothesis.	1SC-P3-02
SCHS-S1C3-03	Critique reports of scientific studies (e.g., published papers, student reports).	†
SCHS-S1C3-04	Evaluate the design of an investigation to identify possible sources of procedural error, including: • sample size • trials • controls • analyses	1SC-P3-01
SCHS-S1C3-05	Design models (conceptual or physical) of the following to represent "real world" scenarios: • carbon cycle • water cycle • phase change • collisions	1SC-P2-01
SCHS-S1C3-06	Use descriptive statistics to analyze data, including: • mean • frequency • range (See MHS-S2C1-10)	†
SCHS-S1C3-07	Propose further investigations based on the findings of a conducted investigation.	1SC-P1-02
Concept 4: Communication		
SCHS-S1C4-01	For a specific investigation, choose an appropriate method for communicating the results. (See W09-S3C2-01 and W10-S3C3-01)	†
SCHS-S1C4-02	Produce graphs that communicate data. (See MHS-S2C1-02)	1SC-P6-04
SCHS-S1C4-03	Communicate results clearly and logically.	1SC-P6-04
SCHS-S1C4-04	Support conclusions with logical scientific arguments.	†

† This PO is new to the Science Standard Articulated by Grade Level

CROSSWALK: Science Standard Articulated by Grade Level to 1997 Science Standard

High School

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 2: History and Nature of Science		
Concept 1: History of Science as a Human Endeavor		
Coding	**Performance Objective**	
SCHS-S2C1-01	Describe how human curiosity and needs have influenced science, impacting the quality of life worldwide.	2SC-P1
SCHS-S2C1-02	*Describe how diverse people and/or cultures, past and present, have made important contributions to scientific innovations.*	2SC-P1
SCHS-S2C1-03	Analyze how specific changes in science have affected society.	2SC-P3-02
SCHS-S2C1-04	Analyze how specific cultural and/or societal issues promote or hinder scientific advancements.	2SC-P1-02
Concept 2: Nature of Scientific Knowledge		
SCHS-S2C2-01	Specify the requirements of a valid, scientific explanation (theory), including that it be: • logical • subject to peer review • public • respectful of rules of evidence	†
SCHS-S2C2-02	Explain the process by which accepted ideas are challenged or extended by scientific innovation.	2SC-P2-01
SCHS-S2C2-03	Distinguish between pure and applied science.	2SC-P3-01 2SC-P3-02
SCHS-S2C2-04	Describe how scientists continue to investigate and critically analyze aspects of theories.	2SC-P6-01

† This PO is new to the Science Standard Articulated by Grade Level

CROSSWALK: Science Standard Articulated by Grade Level to 1997 Science Standard

High School

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 3: Science in Personal and Social Perspectives		
Concept 1: Changes in Environments		
Coding	**Performance Objective**	
SCHS-S3C1-01	Evaluate how the processes of natural ecosystems affect, and are affected by, humans.	3SC-P4-01 3SC-P4-02
SCHS-S3C1-02	Describe the environmental effects of the following natural and/or human-caused hazards: • flooding • drought • earthquakes • fires • pollution • extreme weather	†
SCHS-S3C1-03	Assess how human activities (e.g., clear cutting, water management, tree thinning) can affect the potential for hazards.	†
SCHS-S3C1-04	Evaluate the following factors that affect the quality of the environment: • urban development • smoke • volcanic dust	†
SCHS-S3C1-05	Evaluate the effectiveness of conservation practices and preservation techniques on environmental quality and biodiversity.	†
Concept 2: Science and Technology in Society		
SCHS-S3C2-01	Analyze the costs, benefits, and risks of various ways of dealing with the following needs or problems: • various forms of alternative energy • storage of nuclear waste • abandoned mines • greenhouse gases • hazardous wastes	3SC-P2-01
SCHS-S3C2-02	Recognize the importance of basing arguments on a thorough understanding of the core concepts and principles of science and technology.	†
SCHS-S3C2-03	Support a position on a science or technology issue.	†

† This PO is new to the Science Standard Articulated by Grade Level

High School

SCHS-S3C2-04	Analyze the use of renewable and nonrenewable resources in Arizona: • water • land • soil • minerals • air	†
SCHS-S3C2-05	Evaluate methods used to manage natural resources (e.g., reintroduction of wildlife, fire ecology).	†

Concept 3: Human Population Characteristics		
SCHS-S3C3-01	Analyze social factors that limit the growth of a human population, including: • affluence • education • access to health care • cultural influences	†
SCHS-S3C3-02	Describe biotic (living) and abiotic (nonliving) factors that affect human populations.	3SC-P5-01
SCHS-S3C3-03	Predict the effect of a change in a specific factor on a human population.	3SC-P5-02

† This PO is new to the Science Standard Articulated by Grade Level

CROSSWALK: Science Standard Articulated by Grade Level to 1997 Science Standard

High School

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 4: Life Science		
Concept 1: The Cell		
Coding	**Performance Objective**	
SCHS-S4C1-01	Describe the role of energy in cellular growth, development, and repair.	4SC-P5-02
SCHS-S4C1-02	Compare the form and function of prokaryotic and eukaryotic cells and their cellular components.	4SC-E2-01 4SC-E2-02
SCHS-S4C1-03	Explain the importance of water to cells.	†
SCHS-S4C1-04	Analyze mechanisms of transport of materials (e.g., water, ions, macromolecules) into and out of cells: • passive transport • active transport	†
SCHS-S4C1-05	Describe the purposes and processes of cellular reproduction.	4SC-P3-03
Concept 2: Molecular Basis of Heredity		
SCHS-S4C2-01	Analyze the relationships among nucleic acids (DNA, RNA), genes, and chromosomes.	4SC-P2-01
SCHS-S4C2-02	Describe the molecular basis of heredity, in viruses and living things, including DNA replication and protein synthesis.	4SC-P2-02 4SC-P3-02
SCHS-S4C2-03	Explain how genotypic variation occurs and results in phenotypic diversity.	4SC-P2-03
SCHS-S4C2-04	Describe how meiosis and fertilization maintain genetic variation.	4SC-P2-04
Concept 3: Interdependence of Organisms		
SCHS-S4C3-01	Identify the relationships among organisms within populations, communities, ecosystems, and biomes.	†
SCHS-S4C3-02	Describe how organisms are influenced by a particular combination of biotic (living) and abiotic (nonliving) factors in an environment.	4SC-P4-01
SCHS-S4C3-03	Assess how the size and the rate of growth of a population are determined by birth rate, death rate, immigration, emigration, and carrying capacity of the environment.	4SC-P6-03

† This PO is new to the Science Standard Articulated by Grade Level

CROSSWALK: Science Standard Articulated by Grade Level to 1997 Science Standard

High School

Concept 4: Biological Evolution		
SCHS-S4C4-01	Identify the following components of natural selection, which can lead to speciation: • potential for a species to increase its numbers • genetic variability and inheritance of offspring due to mutation and recombination of genes • finite supply of resources required for life • selection by the environment of those offspring better able to survive and produce offspring	4SC-P10-01
SCHS-S4C4-02	Explain how genotypic and phenotypic variation can result in adaptations that influence an organism's success in an environment.	4SC-P6-02
SCHS-S4C4-03	Describe how the continuing operation of natural selection underlies a population's ability to adapt to changes in the environment and leads to biodiversity and the origin of new species.	4SC-P6-01 4SC-P10-01
SCHS-S4C4-04	Predict how a change in an environmental factor (e.g., rainfall, habitat loss, non-native species) can affect the number and diversity of species in an ecosystem.	4SC-P6-03 4SC-P6-04
SCHS-S4C4-05	Analyze how patterns in the fossil record, nuclear chemistry, geology, molecular biology, and geographical distribution give support to the theory of organic evolution through natural selection over billions of years and the resulting present day biodiversity.	4SC-P8-01 4SC-P8-02 4SC-P9-01
SCHS-S4C4-06	Analyze, using a biological classification system (i.e., cladistics, phylogeny, morphology, DNA analysis), the degree of relatedness among various species.	4SC-P1-03
Concept 5: Matter, Energy, and Organization in Living Systems (Including Human Systems)		
SCHS-S4C5-01	Compare the processes of photosynthesis and cellular respiration in terms of energy flow, reactants, and products.	4SC-P3-01
SCHS-S4C5-02	Describe the role of organic and inorganic chemicals (e.g., carbohydrates, proteins, lipids, nucleic acids, water, ATP) important to living things.	†
SCHS-S4C5-03	Diagram the following biogeochemical cycles in an ecosystem: • water • carbon • nitrogen	3SC-P4-01

† This PO is new to the Science Standard Articulated by Grade Level

High School

SCHS-S4C5-04	Diagram the energy flow in an ecosystem through a food chain.	4SC-P4-01
SCHS-S4C5-05	Describe the levels of organization of living things from cells, through tissues, organs, organ systems, organisms, populations, and communities to ecosystems.	†

Science Standard Articulated by Grade Level		1997 Arizona Academic Content Standard: Science
Strand 5: Physical Science		
Concept 1: Structure and Properties of Matter		
Coding	**Performance Objective**	
SCHS-S5C1-01	Describe substances based on their physical properties.	5SC-P1-01
SCHS-S5C1-02	Describe substances based on their chemical properties.	5SC-P1-01
SCHS-S5C1-03	Predict properties of elements and compounds using trends of the periodic table (e.g., metals, non-metals, bonding – ionic/covalent).	5SC-P2-02 5SC-P2-03
SCHS-S5C1-04	Separate mixtures of substances based on their physical properties.	5SC-P1-03
SCHS-S5C1-05	Describe the properties of electric charge and the conservation of electric charge.	†
SCHS-S5C1-06	Describe the following features and components of the atom: • protons • neutrons • electrons • mass • number and type of particles • structure • organization	5SC-P2-01
SCHS-S5C1-07	Describe the historical development of models of the atom.	5SC-P6-01
SCHS-S5C1-08	Explain the details of atomic structure (e.g., electron configuration, energy levels, isotopes).	5SC-P2-01

† This PO is new to the Science Standard Articulated by Grade Level

CROSSWALK: Science Standard Articulated by Grade Level to 1997 Science Standard

High School

Concept 2: Motions and Forces		
SCHS-S5C2-01	Determine the rate of change of a quantity (e.g., rate of erosion, rate of reaction, rate of growth, velocity).	†
SCHS-S5C2-02	Analyze the relationships among position, velocity, acceleration, and time: • graphically • mathematically	†
SCHS-S5C2-03	Explain how Newton's 1st Law applies to objects at rest or moving at constant velocity.	†
SCHS-S5C2-04	Using Newton's 2nd Law of Motion, analyze the relationships among the net force acting on a body, the mass of the body, and the resulting acceleration: • graphically • mathematically	†
SCHS-S5C2-05	Use Newton's 3rd Law to explain forces as interactions between bodies (e.g., a table pushing up on a vase that is pushing down on it; an athlete pushing on a basketball as the ball pushes back on her).	†
SCHS-S5C2-06	Analyze the two-dimensional motion of objects by using vectors and their components.	†
SCHS-S5C2-07	Give an example that shows the independence of the horizontal and vertical components of projectile motion.	†
SCHS-S5C2-08	Analyze the general relationships among force, acceleration, and motion for an object undergoing uniform circular motion.	†
SCHS-S5C2-09	Represent the force conditions required to maintain static equilibrium.	†
SCHS-S5C2-10	Describe the nature and magnitude of frictional forces.	†
SCHS-S5C2-11	Using the Law of Universal Gravitation, predict how the gravitational force will change when the distance between two masses changes or the mass of one of them changes.	5SC-P7-01
SCHS-S5C2-12	Using Coulomb's Law, predict how the electrical force will change when the distance between two point charges changes or the charge of one of them changes.	†
SCHS-S5C2-13	Analyze the impulse required to produce a change in momentum.	†

† This PO is new to the Science Standard Articulated by Grade Level

High School

SCHS-S5C2-14	Quantify interactions between objects to show that the total momentum is conserved in both collision and recoil situations.	†
Concept 3: Conservation of Energy and Increase in Disorder		
SCHS-S5C3-01	Describe the following ways in which energy is stored in a system: • mechanical • electrical • chemical • nuclear	†
SCHS-S5C3-02	Describe various ways in which energy is transferred from one system to another (e.g., mechanical contact, thermal conduction, electromagnetic radiation.)	†
SCHS-S5C3-03	Recognize that energy is conserved in a closed system.	5SC-P8-01
SCHS-S5C3-04	Calculate quantitative relationships associated with the conservation of energy.	5SC-P3-03
SCHS-S5C3-05	Analyze the relationship between energy transfer and disorder in the universe (2nd Law of Thermodynamics).	5SC-P8-02
SCHS-S5C3-06	Distinguish between heat and temperature.	†
SCHS-S5C3-07	Explain how molecular motion is related to temperature and phase changes.	†
Concept 4: Chemical Reactions		
SCHS-S5C4-01	Apply the law of conservation of matter to changes in a system.	5SC-P4-01
SCHS-S5C4-02	Identify the indicators of chemical change, including formation of a precipitate, evolution of a gas, color change, absorption or release of heat energy.	†
SCHS-S5C4-03	Represent a chemical reaction by using a balanced equation.	5SC-P5-01
SCHS-S5C4-04	Distinguish among the types of bonds (i.e., ionic, covalent, metallic, hydrogen bonding).	†
SCHS-S5C4-05	Describe the mole concept and its relationship to Avogadro's number.	†
SCHS-S5C4-06	Solve problems involving such quantities as moles, mass, molecules, volume of a gas, and molarity using the mole concept and Avogadro's number.	†

† This PO is new to the Science Standard Articulated by Grade Level

High School

SCHS-S5C4-07	Predict the properties (e.g., melting point, boiling point, conductivity) of substances based upon bond type.	5SC-P2-03
SCHS-S5C4-08	Quantify the relationships between reactants and products in chemical reactions (e.g., stoichiometry, equilibrium, energy transfers).	5SC-P4-02 5SC-P4-04
SCHS-S5C4-09	Predict the products of a chemical reaction using types of reactions (e.g., synthesis, decomposition, replacement, combustion).	5SC-P5-02
SCHS-S5C4-10	Explain the energy transfers within chemical reactions using the law of conservation of energy.	5SC-P4-03
SCHS-S5C4-11	Predict the effect of various factors (e.g., temperature, concentration, pressure, catalyst) on the equilibrium state and on the rates of chemical reaction.	5SC-P5-01
SCHS-S5C4-12	Compare the nature, behavior, concentration, and strengths of acids and bases.	†
SCHS-S5C4-13	Determine the transfer of electrons in oxidation/reduction reactions.	†
Concept 5: Interactions of Energy and Matter		
SCHS-S5C5-01	Describe various ways in which matter and energy interact (e.g., photosynthesis, phase change).	5SC-P6-02
SCHS-S5C5-02	Describe the following characteristics of waves: • wavelength • frequency • period • amplitude	†
SCHS-S5C5-03	Quantify the relationships among the frequency, wavelength, and the speed of light.	†
SCHS-S5C5-04	Describe the basic assumptions of kinetic molecular theory.	†
SCHS-S5C5-05	Apply kinetic molecular theory to the behavior of matter (e.g., gas laws).	†
SCHS-S5C5-06	Analyze calorimetric measurements in simple systems and the energy involved in changes of state.	5SC-P3-01 5SC-P3-02
SCHS-S5C5-07	Explain the relationship between the wavelength of light absorbed or released by an atom or molecule and the transfer of a discrete amount of energy.	†

† This PO is new to the Science Standard Articulated by Grade Level

High School

SCHS-S5C5-08	Describe the relationship among electric potential, current, and resistance in an ohmic system.	†
SCHS-S5C5-09	Quantify the relationships among electric potential, current, and resistance in an ohmic system.	†

Science Standard Articulated by Grade Level Strand 6: Earth and Space Science		1997 Arizona Academic Content Standard: Science
Concept 1: Geochemical Cycles		
Coding	**Performance Objective**	
SCHS-S6C1-01	Identify ways materials are cycled within the Earth system (i.e., carbon cycle, water cycle, rock cycle).	6SC-P6-01
SCHS-S6C1-02	Demonstrate how dynamic processes such as weathering, erosion, sedimentation, metamorphism, and orogenesis relate to redistribution of materials within the Earth system.	†
SCHS-S6C1-03	Explain how the rock cycle is related to plate tectonics.	†
SCHS-S6C1-04	Demonstrate how the hydrosphere links the biosphere, lithosphere, cryosphere, and atmosphere.	6SC-P6-02 6SC-P6-03 6SC-P6-04 6SC-P6-05
SCHS-S6C1-05	Describe factors that impact current and future water quantity and quality including surface, ground, and local water issues.	6SC-P5-02 6SC-P5-04
SCHS-S6C1-06	Analyze methods of reclamation and conservation of water.	6SC-P5-03
SCHS-S6C1-07	Explain how the geochemical processes are responsible for the concentration of economically valuable minerals and ores in Arizona and worldwide.	†
Concept 2: Energy in the Earth System (Both Internal and External)		
SCHS-S6C2-01	Describe the flow of energy to and from the Earth.	†
SCHS-S6C2-02	Explain the mechanisms of heat transfer (convection, conduction, radiation) among the atmosphere, land masses, and oceans.	†
SCHS-S6C2-03	Distinguish between weather and climate.	†

† This PO is new to the Science Standard Articulated by Grade Level

High School

SCHS-S6C2-04	**Internal Energy:** Demonstrate the relationship between the Earth's internal convective heat flow and plate tectonics.	6SC-P3-01
SCHS-S6C2-05	Demonstrate the relationships among earthquakes, volcanoes, mountain ranges, mid-oceanic ridges, deep sea trenches, and tectonic plates.	6SC-P3-02
SCHS-S6C2-06	Distinguish among seismic S, P, and surface waves.	†
SCHS-S6C2-07	Analyze the seismic evidence (S and P waves) used to determine the structure of the Earth.	†
SCHS-S6C2-08	Describe how radioactive decay maintains the Earth's internal temperature.	†
SCHS-S6C2-09	**External Energy:** Explain the effect of heat transfer on climate and weather.	6SC-P7-01
SCHS-S6C2-10	Demonstrate the effect of the Earth's rotation (i.e., Coriolis effect) on the movement of water and air.	†
SCHS-S6C2-11	Describe the origin, life cycle, and behavior of weather systems (i.e., air mass, front, high and low systems, pressure gradients).	†
SCHS-S6C2-12	Describe the conditions that cause severe weather (e.g., hurricanes, tornadoes, thunderstorms).	†
SCHS-S6C2-13	Propose appropriate safety measures that can be taken in preparation for severe weather.	†
SCHS-S6C2-14	Analyze how weather is influenced by both natural and artificial Earth features (e.g., mountain ranges, bodies of water, cities, air pollution).	6SC-P7-02
SCHS-S6C2-15	List the factors that determine climate (e.g., altitude, latitude, water bodies, precipitation, prevailing winds, topography).	†
SCHS-S6C2-16	Explain the causes and/or effects of climate changes over long periods of time (e.g., glaciation, desertification, solar activity, greenhouse effect).	†
SCHS-S6C2-17	Investigate the effects of acid rain, smoke, volcanic dust, urban development, and greenhouse gases, on climate change over various periods of time.	†
Concept 3: Origin and Evolution of the Earth System		

† This PO is new to the Science Standard Articulated by Grade Level

High School

SCHS-S6C3-01	**Earth Origin/System:** Describe the scientific theory of the origin of the solar system (solar nebular hypothesis).	6SC-P1-02
SCHS-S6C3-02	Describe the characteristics, location, and motions of the various kinds of objects in our solar system, including the Sun, planets, satellites, comets, meteors, and asteroids.	†
SCHS-S6C3-03	Explain the phases of the Moon, eclipses (lunar and solar), and the interaction of the Sun, Moon, and Earth (tidal effect).	6SC-P2-02 6SC-P2-03
SCHS-S6C3-04	**Earth History/Evolution:** Interpret a geologic time scale.	†
SCHS-S6C3-05	Distinguish between relative and absolute geologic dating techniques.	6SC-P4-01 6SC-P4-02
SCHS-S6C3-06	Investigate scientific theories of how life originated on Earth (high temperature, low oxygen, clay catalyst model).	6SC-P1-03
SCHS-S6C3-07	Describe how life on Earth has influenced the evolution of the Earth's systems.	†
SCHS-S6C3-08	Sequence major events in the Earth's evolution (e.g., mass extinctions, glacial episodes) using relative and absolute dating data.	6SC-P4-03
SCHS-S6C3-09	Analyze patterns in the fossil record related to the theory of organic evolution.	†
Concept 4: Origin and Evolution of the Universe		
SCHS-S6C4-01	Describe the Big Bang Theory as an explanation for the origin of the universe.	6SC-P1-01
SCHS-S6C4-02	Describe the fusion process that takes place in stars.	†
SCHS-S6C4-03	Analyze the evolution of various types of stars using the Hertzsprung-Russell (HR) diagram.	†
SCHS-S6C4-04	Compare the evolution (life cycles) of stars of different masses (low and high mass).	†
SCHS-S6C4-05	Explain the formation of the light elements in stars and the heavier elements (what astronomers call "metals") in supernova explosions.	†
SCHS-S6C4-06	Explain the evolution and life cycles of galaxies.	†

† This PO is new to the Science Standard Articulated by Grade Level

CROSSWALK: Science Standard Articulated by Grade Level to 1997 Science Standard

Updates

July 21, 2004.
This document was updated to correct editing errors and incorrect references to the 1997 Science Standard. This document contains current information and should replace any prior versions of this crosswalk. References between the following performance objectives and the 1997 Science Standard changed as a result of this update.

SC00-S5C3-01	SC06-S1C4-02	SC06-S5C3-03
SC00-S5C3-02	SC06-S1C4-03	SC06-S5C3-04
SC03-S3C2-03	SC06-S1C4-05	SC07-S1C4-03
SC04-S3C2-01	SC06-S3C2-02	SC08-S1C4-03
SC05-S3C1-03	SC06-S3C2-03	
SC06-S1C4-01	SC06-S5C3-02	

October 5, 2004.
Updated blank cells in the column labeled "1997 Arizona Academic Content Standard: Science" with the † symbol to indicate that the corresponding performance objective is new to the Science Standard Articulated by Grade Level.

March 10, 2005.
Asterisks were removed from the following high school performance objectives:

Strand 4:	**Strand 5:**	**Strand 6:**
SCHS-S4C2-01	SCHS-S5C1-01	SCHS-S6C1-05
SCHS-S4C3-02	SCHS-S5C1-02	SCHS-S6C2-01
SCHS-S4C3-03	SCHS-S5C1-03	SCHS-S6C2-02
SCHS-S4C4-03	SCHS-S5C1-06	SCHS-S6C2-03
SCHS-S4C4-04	SCHS-S5C2-01	SCHS-S6C4-01
SCHS-S4C5-03	SCHS-S5C2-05	
SCHS-S4C5-04	SCHS-S5C3-01	
	SCHS-S5C3-02	
	SCHS-S5C3-03	
	SCHS-S5C3-07	
	SCHS-S5C4-01	
	SCHS-S5C4-02	
	SCHS-S5C5-01	

For the following performance objectives, cross-references were added, modified, or deleted:

SC00-S1C3-02	SC04-S1C3-04	SC07-S1C1-02
SC01-S1C2-04	SC04-S1C4-01	SC07-S1C2-05
SC01-S1C4-01	SC04-S6C3-05	SC07-S1C3-01
SC02-S1C2-03	SC05-S1C1-03	SC07-S1C4-03
SC02-S1C2-04	SC05-S1C2-05	SC07-S1C4-04
SC02-S1C3-03	SC05-S1C4-01	SC07-S1C4-05
SC02-S1C4-01	SC06-S1C1-03	SC08-S1C1-02
SC03-S1C2-05	SC06-S1C2-05	SC08-S1C2-05
SC03-S1C3-03	SC06-S1C4-01	SC08-S1C4-03
SC03-S1C4-01	SC06-S1C4-03	SC08-S1C4-04
SC03-S1C4-02	SC06-S1C4-04	SC08-S1C4-05
SC04-S1C1-04	SC06-S1C4-05	SCHS-S1C1-01
SC04-S1C2-05		SCHS-S1C4-01

† This PO is new to the Science Standard Articulated by Grade Level